THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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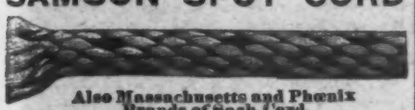

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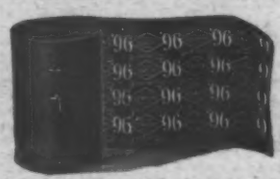

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THE IRON AGE

THURSDAY, FEBRUARY 13, 1902

The Pittsburgh Plate Glass Company.

The annual meeting of the stockholders of the Pittsburgh Plate Glass Company was held in that city last week. John Pitcairn, president of the company, stated in the annual report presented to the stockholders that fully 62 per cent. of their output is sold without profit. He says that the remaining 38 per cent. of the production permits of profits which are threatened by new plate glass enterprises seeking business in the open market.

The profits of the Pittsburgh Plate Glass Company last year were over $1,500,000, and of this, after the payment of dividends, nearly $900,000 was added to the surplus of nearly $5,250,000 carried over from the year before.

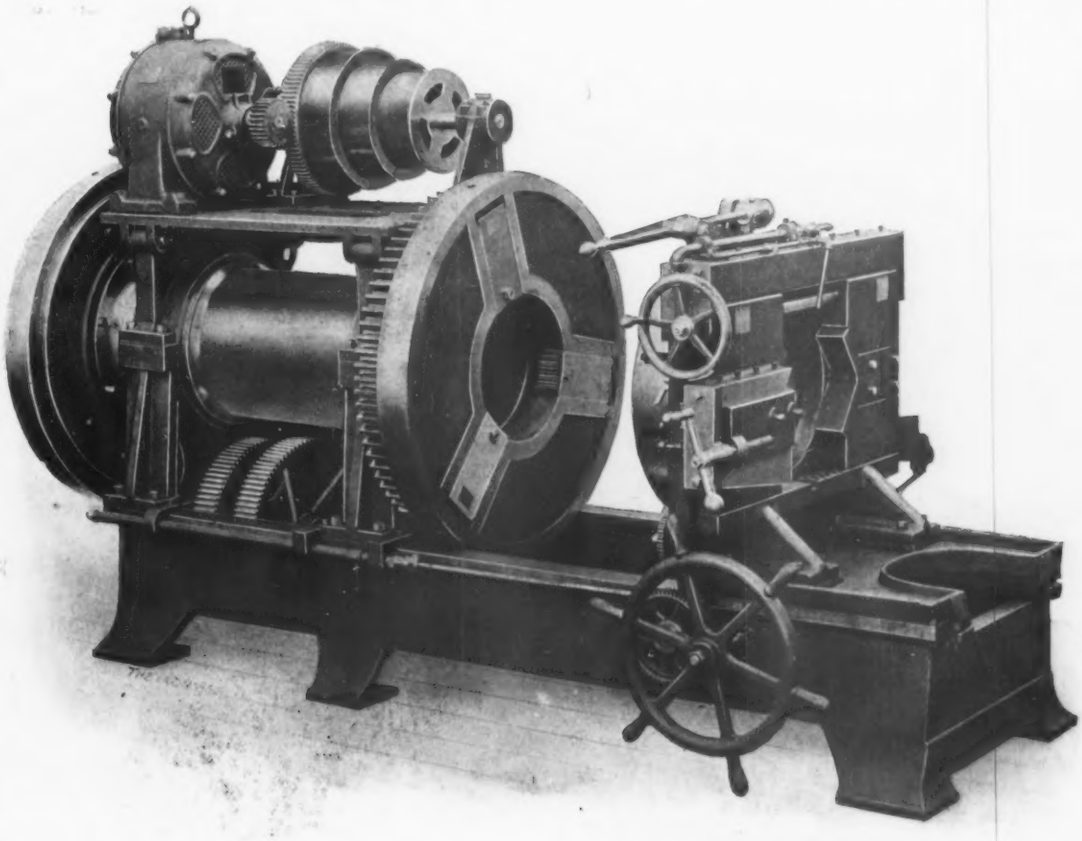
The profits are accounted for in that about $6,000,000 of the company's assets are invested in their jobbing business, profits on which are threatened by the present open market in the window glass trade.

President Pitcairn announces the purchase of the business of the Armstrong-McKelvey Lead & Oil Company of Pittsburgh and the establishment of new warehouses at Atlanta, Ga., and Buffalo, N. Y. The financial statement given to the meeting shows assets as follows: Investment, $13,026,235.66; stocks of plate and window glass and paints, $2,433,415.85; material and working accounts, $594,966.35; quick assets in cash, bills and accounts receivable, $3,105,242.34.

Liabilities are shown as follows: Capital stock, $10,000,000; bonded debt, $10,000; bills and accounts payable, $3,019,654.68; surplus, January 1, 1901, $5,235,567.31; profits in 1901, $1,503,638.21, which, less $609,000 paid in dividends, leaves $894,638.21 passed to surplus, making the total surplus $6,130,205.52. The total of either assets or liabilities is thus shown as $19,159,860.20.

The Bignall & Keeler Duplex Pipe Machine.

The Bignall & Keeler Mfg. Company of Edwardsville, Ill., have designed a pipe machine embracing several special features, one of the most essential being the motor drive. The motor is placed on a table directly over the main bearings of the machine. This table supports a countershaft holding a three-step cone pulley and large driving gear, and the motor pinion is meshed directly into this gear. One side of this table is supported on a hinged bearing, one side of the main journal cap being designed as a support for this bearing. The other side of the table rests on two steel cams. These cams are fastened on a shaft which rotates in the bearings on the main journal caps and by means of a worm gearing on the end of the cam shaft they may be revolved and the table elevated or lowered accordingly. These cam movements furnish the means for tightening the driving belt on the cone pulley, this adjustment being necessary to take up the stretch in the belt or the joint due to wear. By this means the objection to a short belt is overcome, as any required tension may be placed on the belt. Through this design a constant speed motor may be used and all of the advantages of changes of speeds which occur in the belt driven machine are preserved. Through the medium of a sliding gear on one of the lower shafts two speeds of the arbor are obtained for each step of the cone pulley, thereby giving six speeds to the machine. As the controlling of motor speeds by means of resistance boxes is very wasteful, the efficiency of this drive will be apparent. No additional floor space is occupied, because head room is always available. The



THE BIGNALL & KEELER DUPLEX PIPE MACHINE.

machine can be placed in any shop where the usual belt driven machine can be used.

Die Head.

The special feature of the die head, Fig. 3, is found in the fact that it slides in parallel guides on the front of the stand, instead of being stationary, as is customary in standard machines.

This sliding feature is especially adapted to mill practice, where a large proportion of the larger sizes of pipe are shipped with blank ends and the machines are used for cutting off the bad end only. When working under these conditions the die head can be slipped to one side out of the way of the operator. The die head, as shown on the machine, is intended for use in cutting 14, 15 and 16 inch outside diameter pipe. Three heads are furnished with the machine, the second head being slightly smaller than the one shown on the machine and being equipped with dies to cut 9, 10 and 12 inch pipe. The third and smallest head is to be used for cutting 6, 7 and 8 inch pipe. In order to assist in the sliding of these heads sprocket wheels are placed on both ends of the stand, the one on the operating side having an adjustable lever attached. A steel chain of the usual bicycle construction is placed around these sprockets and attached to steel hooks on each side of the die head. The operator can, therefore, easily slide the head over by revolving the sprocket on the operating side. The heads are all expanding and equipped with an adjusting mechanism, which consists simply of a lever, a threaded screw and hand nut on the screw and the bracket attached to the cam ring, as shown in Fig. 3. The adjustments furnished by this mechanism are exceedingly fine and yet accurate at all times. The No. 16 head has 12 chasers to each set of dies; the No. 12 head, eight chasers, and the No. 8 head, six chasers. The dies are removed from the head through the slots shown in the rim of the cam ring, thereby avoiding the necessity of removing the cam ring or face ring from the head. All adjustments are made by hand, and the annoyance incidental to lost or misplaced tools avoided.

The steady slides for holding the pipe, as well as the cutting off tool, are placed back of the stand, the slide for the cutting off tool being held by bevel guides on one of the steady slides. An automatic oil pump is placed in the bed of the machine and connected to one of the lower shafts. The oil is delivered through a system of piping to the die head and cutting off tool. The die head is cored on the inside, these cores being used as oil reservoirs. The dies are thus automatically flushed with oil and all danger of cutting with dry dies is eliminated.

The gearing is designed with a view toward great strength and accurate running. All of the gears are machine cut from the solid metal, even the large master gear directly behind the front chuck, which is cut with two-pitch teeth and is 40½ inches on the pitch diameter.

The steel grippers in the chuck slides are of very simple design. In tube mill practice, where the machines are used almost continuously and the chuck jaws, therefore, subjected to a maximum amount of wear, it is necessary to use a simple grip, which can be readily sharpened by inexperienced operators, and one that will not involve the throwing away of a large amount of steel when used to its limit. The chuck slides in this machine have two cored pockets in the end, these pockets being separated by a strip of metal about 1 inch thick, each pocket being about 2 inches deep. Into each pocket are fitted four pieces of 3 x ⅝ tool steel cut from the rough stock, ground flat on one end and to the proper angle on the other. In order to keep these pieces tight in the pocket an eccentric pin is placed in the division between the two pockets. A small wrench is furnished to turn this pin, and when turned the eccentric faces press against the adjacent steels, forcing the pieces against the sides of the jaws. As their only tendency to fall out of the pockets is by reason of their own weight, the pressure necessary to keep them in is

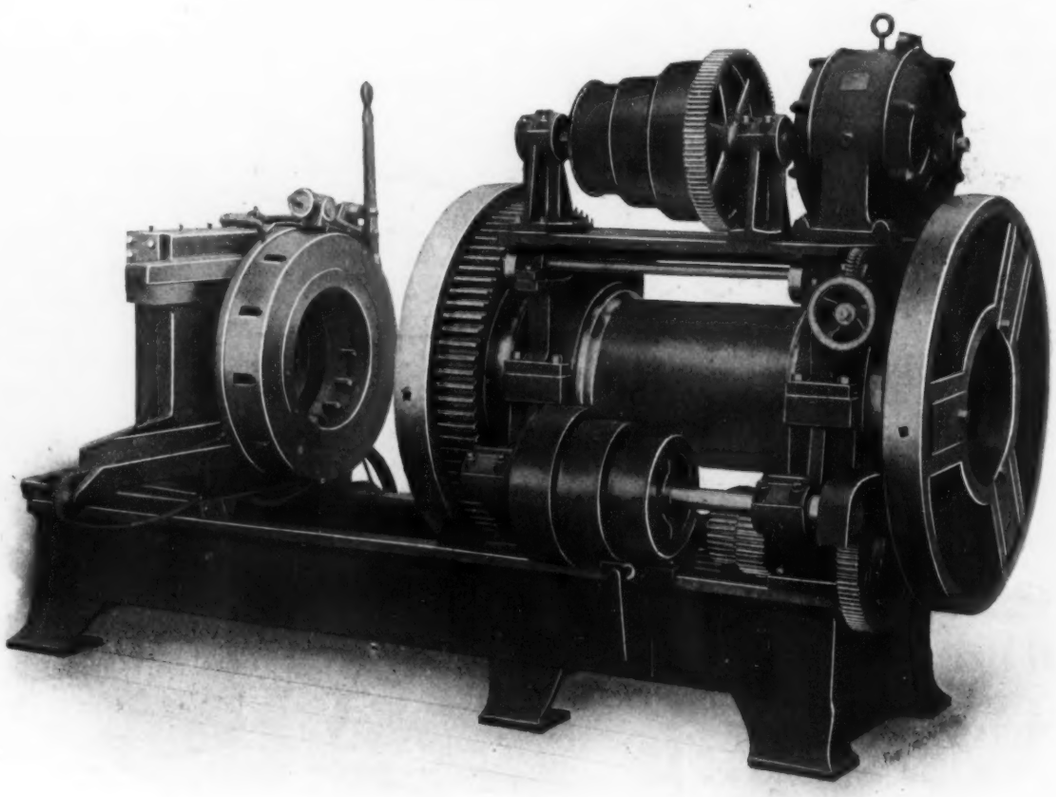


Fig. 2.—Rear View.

THE BIGNALL & KEELER DUPLEX PIPE MACHINE.

quite small. These pieces can be removed and sharpened on an ordinary emery wheel. They can also be cut from a rough bar without any particular finish, and when used to their limit, the amount of stock discarded is very small.

Electric Welding.

Braune states in the *Oesterreichische Zeitschrift für Berg und Hüttenwesen*, that electric welding on the Slavianoff method is practiced at Fürstenwald, near Berlin. In this method, as opposed to that of Bernardos, both electrodes are of metal. One pole of the electric machine is connected with the piece of work under treatment, and the other with the iron rod which is to be melted and used for treating the work. This iron rod is round, about 39 inches in length, and is connected

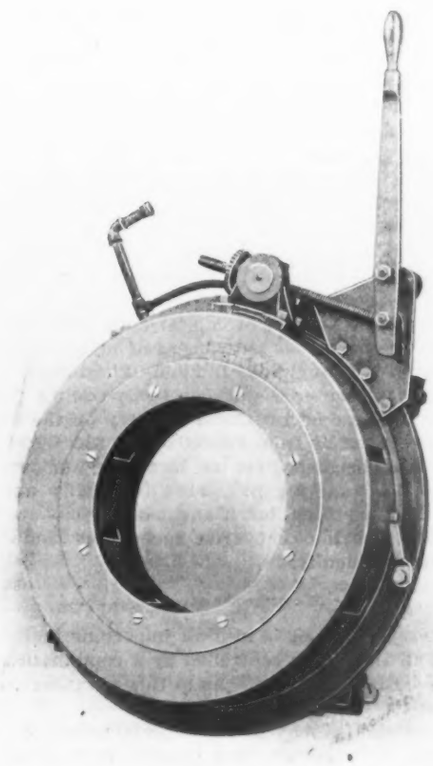


Fig. 3.—Die Head.

THE BIGNALL & KEELER DUPLEX PIPE MACHINE.

with the positive or with the negative pole, according to the nature of the work to be performed. The current rapidly melts this rod, and the molten drops of metal fall immediately upon that portion of the other pole on which they are intended to be solidified. The whole of the heat evolved is utilized for the fusion of the metal, and the working results are therefore excellent, but the utilization of two metallic electrodes renders an automatic regulation of the voltaic arc necessary, and this is effected by means of a special apparatus.

If the current acts chemically upon the metal under treatment, as, for instance, in the case of cast iron, the iron rod that is to be melted is almost always connected with the positive pole, as otherwise the fused cast iron would undergo partial oxidation and become hard and almost white. The method itself consists in a preliminary mechanical treatment; the preparation of fire resisting molds around the parts to be repaired, the heating up of the material under treatment, and the actual welding. This general treatment is described in more detail. If the metal under treatment is cast iron, the molds must be lined with retort carbon, or otherwise the iron will become white. If it is desirable to be white iron, then quartz sand may be used instead, or the direction of the current altered. To prevent the fused metal from solidifying immediately upon the work, this latter must be heated to about 500 degrees C. At first this is not easy to perform, owing to strains which result, but it subsequently becomes easy. In the case of cast iron a material is used for the electrode which is obtained by melting together 88.89 parts of gray pig iron and 11.11 parts of ferrosilicon. Small portions of this metal are added to the molten iron which is formed as the electrode melts, and the temperature of the molten metal can thus be carefully regulated and kept under control. Before the fusion a cast iron contained 3.5 per cent. of carbon and 3 per cent. of silicon, while after the electric fusion the metal contained the same percentage of carbon, but only 1 per cent. of silicon. Such a metal is gray and of a fine grain. When welding steel or wrought iron a far higher temperature is necessary than in the case of cast iron. The metal bar is then connected with the negative pole. The molten metal must be kept from oxidation to prevent red shortness at the weld. The fused metal is therefore at once covered with powdered glass. Despite this some oxidation results, but this is met by the addition of some ferromanganese in quantity usually about 1 per cent. of the weight of the fused metal in the case of steel, and 5 per cent. in that of malleable iron. Ferrochrome can also be used, but it reduces the iron oxide more slowly than does the ferromanganase. The metal welded in this way is not quite so strong as the original sound unwelded piece would have been, but it does not fall far short of this, and, in addition, subsequent mechanical treatment causes considerable improvement. In welding copper to wrought iron or steel this latter is connected with the positive pole, but if to cast iron, then this is placed in connection with the negative pole.

The Franklin Institute and the Metric System.

The report has been submitted to the Franklin Institute of Philadelphia of a special committee appointed to consider the feasibility and advisability of the adoption of the metric system in the United States. This committee consisted of James Christie, American Bridge Company, Pencoyd, Pa.; A. E. Kennelly, Houston & Kennelly, electrical engineers; F. E. Ives, photographer and engraver; Wilfred Lewis, president Tabor Machine Company; S. M. Vauclain, superintendent Baldwin Locomotive Works; Jesse Pawling, Jr., instructor in physics, Central High School; George F. Stradling, instructor in physics, N. E. Manual Training School; Harry F. Keller, professor of chemistry, Central High School; A. Falkenau, machinist, and L. F. Rondinella, instructor in engineering, Central Manual Training School.

The report, which is as follows, will be the subject of discussion at the meeting of the institute on February 19:

Whereas, It is desirable to obtain an international standard of weights and measures, also to simplify and regulate some of our existing standards; and

Whereas, The metric system is commendable, not only as a suitable international standard, but also for facility of computation, convenience in memorizing and simplicity of enumeration;

Resolved, That the Franklin Institute approves of any movement which will promote the universal introduction of the metric system with the least confusion and expense.

Resolved, That the national Government should enact such laws as will insure the adoption of the metric system of weights and measures as the sole standard in its various departments as rapidly as may be consistent with the public service.

The January number of the "Proceedings of the American Society of Engineers" contains a very valuable paper, by C. A. P. Turner, on "Thermo-Electric Measurement of Stress." It is to be presented before the society on March 19, 1902.

The Industrial Commission on Trusts.

The Final Report of the Industrial Commission.

WASHINGTON, D. C., February 11, 1902.—The long anticipated final report of the Industrial Commission on the subject of the so-called trusts was yesterday filed with the Senate and House of Representatives, accompanied by a series of recommendations for legislation by Congress and by State legislatures to remedy the evils which are found to exist. The life of the Commission will expire by statutory limitation on the 15th inst., and the duty of preparing measures for the execution of such its recommendations as it is deemed advisable for Congress to adopt will then devolve upon the appropriate committees of the two houses.

The recommendations for legislation embrace several important amendments to existing antitrust statutes and the creation of a new bureau in the Treasury Department charged with the supervision of all corporations doing an interestate business, which it is proposed to bring within the jurisdiction of the department by levying a small graduated tax upon the gross receipts of each corporation from its interstate trade. It will be seen that the most important of these suggestions—the so-called "publicity plan"—was accurately foreshadowed in this correspondence some weeks ago. The contingent in the Commission that favored a Federal corporation law did not prove sufficiently strong to secure the adoption of such a recommendation except as an alternative suggestion in the event that the remedies specified do not prove adequate.

Findings of the Commission.

In submitting its final report on industrial combinations the Commission precedes its recommendations with an interesting series of findings based upon its investigations during the past three years, in the course of which it says:

"The tendency to consolidate competing establishments in various industries has been so pronounced in recent years as to create much apprehension of monopoly. One of the most noticeable effects of the legislation against the so-called trusts has been to drive the corporations wishing to combine from the old forms, which often contained the seeds of disintegration, into the new form of a single large corporation. Apparently the methods of consolidation have been strengthened and improved. The economic advantages of combination and the apparent success of most of the new companies have led many of the ablest business men and economists to the conclusion that the combinations have become an established factor in the industrial life of the nation. Not all of the problems, however, have been worked out, and it remains to be seen whether or not the new companies are as safe for investment as the old, and whether or not the public interest is in any way endangered by them."

The Commission then reviews at some length the development of the consolidation movement in its various forms until the present corporation laws of New Jersey, Delaware and West Virginia were enacted, and it is stated that "these laws, so favorable to corporations, together with the pressure of competition, and with the advantages of combination, led to a very rapid increase in such industrial combinations." The report adds, however, that the "fever for organization which was so evident two years ago seems largely to have run its course; bankers and other financial supporters of the combinations have become more conservative, and at present an organizer can hardly expect to find the capital for floating his plan unless he has ready to back it a thoroughly well established business that is showing good profits through its separate plants."

Advantages of Consolidation.

The Commission finds that while fear of excessive competition has brought about the majority of consolidations, yet the advantages to be secured, aside from the cessation of rivalry, have also been prominent factors in this movement. On this point the report says:

"If the industry is one in which the final product is manufactured at low cost, the saving from freight rates through the combination of plants located in different sections may be very large. While one large and well equipped sugar refinery or salt block may produce refined sugar or fine salt at as low cost as would any number of associated plants, the element of freight becomes so large a percentage of cost to the consumer that associated refineries or salt blocks located in different sections, but working through a common selling office, could supply consumers at rates materially lower than could any single establishment, however well equipped.

"It is a familiar fact that in most industries an increase in the size of the plant, within certain limits, reduces the cost of manufacture. The cost of buildings necessary for the shelter of machinery and employees is reduced in large plants. Large power plants are more economical than small ones. In a large establishment there can be co-ordination of machinery and of processes. The number of foremen, superintendents, bookkeepers, selling agents and executive officers is less in proportion to the product in a large than in a small plant.

"In some industries there is a limit to the economy resulting from an increase in the size of plants. There is a limit to the size of boilers, engines and machinery, and after this limit is reached separate installments become necessary. The ability to manage processes satisfactorily has a quantitative limit. It does not, therefore, follow that because of large capital any single establishment can by its economies drive all others out of the field.

"There is an element of monopoly in large plants that should not be overlooked. If the industry is one in which a very large amount of capital must be invested, that fact in itself includes an element of monopoly. Mr. King of Jones & Laughlins, Limited, Pittsburgh, testifies that in order to build and thoroughly equip a plant for the manufacture of steel, and to carry on the business, an investment of from $20,000,000 to $30,000,000 is required. The necessity for so large an amount of money excludes anything like what is usually understood as free competition; but if adequates profits are indicated it is probable that even such sums could be raised without difficulty."

Management.

Superior management is also an important factor in developing all the plants controlled by a combination to a high standard of efficiency. As to this advantage, the report says:

"However skillful may be the superintendent of any establishment, it is certain that through intimate association with eight or ten other efficient men, he can secure many valuable ideas. When combinations of different establishments are made, the common knowledge of the inner workings of each separate establishment is valuable to all.

"This advantage will always remain with the combination. Carelessness or lack of interest on the part of hired superintendents is always to be overcome. The combination meets this condition by comparative bookkeeping, so that methods and the exact results in each establishment are known in the central office. Reports are often made daily, usually weekly or monthly. In this way the general manager is enabled to compare the work of each superintendent with that of all the others. Whenever any weakness appears, the attention of the superintendent responsible is called to it. Service in this way can be so controlled that the standard of excellence in the best can be established and maintained in all the others.

"Responsible managers are often paid, in part, according to results accomplished. It was Mr. Carnegie's plan, used for many years in his steel works at Pittsburgh. The United States Steel Corporation have adopted it to a considerable extent also. It seems to be the opinion of many of the managers of the most prominent combinations in the United States that though the two means mentioned, as well as through the natural pride men feel in their work, the alleged lack of efficiency in hired superintendents is largely overcome.

"A saving can often be made by concentrating departments of manufacture instead of compelling each

establishment to make numerous parts of the product. The president of the American Steel Hoop Company testified that before that company were organized each large mill, in order to meet the demands for the various shapes and sizes of iron which it supplied, had to keep on hand many kinds of rolls for rolling different products. Much time was consumed also, while filling large orders for many varieties, in stopping the mill to change these rolls, thus preventing continuity of employment and production. After the combination was effected, each mill produced certain sizes and qualities of iron bars. When a large order was received, it was distributed to mills producing the varieties required, so that practically no time was lost in changing rolls. The men became more efficient also, because of working on one product. The result was an estimated saving of at least $1 per ton in the cost of manufacture."

The Commission finds that there are some disadvantages under which combinations labor, including difficulty in procuring raw materials in sufficient quantity at all times, inability to vary the character of output sufficiently without material addition to cost, &c. On this point the report adds:

"For a long time to come there is certain to be a popular prejudice against combinations, even when such combinations do not practice the abuses of monopoly. There is always the danger of monopoly from the largest combinations, and this danger the people fear. The individual producer, therefore, may count upon having a popular sympathy in his favor. The customer is not likely to avoid dealing with a monopoly at any great sacrifice, but other things being equal, he will give preference to the independent producer."

Overcapitalization.

In dealing with the subject of overcapitalization the report reviews at length the contention of promoters that "good will" should be generously capitalized.

"Most of the organizers of large combinations," says the report, "are of the opinion that earning capacity, as well as tangible assets, is a proper subject of capitalization. The plan which they have most commonly followed is to issue preferred stock to an amount equal to the tangible assets, and at least an equal amount of common stock, which was broadly said to represent good will and opportunity. Often, however, instead of tangible assets, in the strictest sense of the word, the preferred stock of a combination has represented the cash selling value of the properties purchased as going concerns. This, of course, includes good will in its proper sense. It was upon this basis that the Moore steel companies (the National Steel, American Steel Hoop, American Sheet Steel and the American Tin Plate companies) were organized. Owing to the favorable condition of the iron and steel trade at that time, this cash selling value represented much more than the cost of reproduction of the plants and running capital. Then there was issued an equal or greater amount of common stock said to represent good will.

"In these examples 'good will,' in the language of the corporation promoters, has represented two entirely different things: 1, The value derived from patents, trade-marks and business connections, and 2, the value of the earning capacity of the establishments and the hopes of the promoter as to savings and profits which may be realized as a result of the combination. These profits may be secured, either through the economies made by the combined management, or through the power of the combination to secure monopoly prices. Within limits, this last consideration is really a capitalization of monopoly."

Combinations and Labor.

The Commission states that it is impossible to make any statement that will be of universal application regarding the attitude of combinations toward trade unions.

"The managers of most of the steel combinations which now make up the United States Steel Corporation," says the report, "have dealt with the officers of the Amalgamated Association of Iron, Steel and Tin workers and have signed the scale with them. There can be little doubt that in many cases the organizers of combinations have felt that through the power of added capital, and the possibility of filling orders from any of the various plants, they would be more independent in their dealings with trade unions. At times the combinations have derived advantages in this way. For example, in 1899, when there was a smelters' strike in Colorado, the American Smelting & Refining Company closed the plants in which the strikers had been employed, transferred the work to other plants, and in that way coerced the strikers to some extent. When workingmen are not organized throughout the whole industry, a combination is able in this way to secure an advantage over individual establishments.

"The great strike of 1901 in connection with the United States Steel Corporation throws no additional light upon this subject. The officers of the corporation at the beginning determined to leave the settlement of the difficulties to the constituent companies. The labor union, however, preferred to deal with the officers of the central corporation, knowing that they had in the end the determining power. The officers of the combination showed little unwillingness to deal with the officers of the union, and met them on a common ground for discussion and negotiation. This strike illustrated the advantage possessed by a great combination in its ability to adapt its plants to various products, and to transfer not only orders, but workingmen, to different plants; but, as the trade was not completely organized, little light was thrown on the question of ultimate relations between combinations and labor organizations.

"Even if the United States Steel Corporation had tried to make all its plants nonunion, and had succeeded as did the Carnegie Steel Company, the fact of its success would not have proved that combinations were detrimental to the interests of the workingmen, or that they could succeed better than individual firms in imposing conditions upon the unions. The success of the Carnegie Company in the strike of 1892 was complete. The success of the workingmen in the case of the wall paper manufacturers was no less complete. In both cases it was a matter of particular advantage and particular strength under special circumstances. The same thing holds true, in the main, as regards the United States Steel Corporation. Although more men and more capital were involved in the strike of 1901, the settlement of that difficulty does not settle the question of the effect of combination on labor."

Combinations and the Tariff.

An important feature of the report deals with the suggestion so frequently made of late that the tariff on trust made goods should be reduced or removed. The Commission says:

"Removal of the tariff, even in any single industry, should not be lightly considered. When the tariff is essential to any industry its removal would doubtless kill not only the combination, but the industry itself, bringing upon the country attendant evils. Even if the industry is not killed, if severe pressure is brought to bear, the industrial combination will not be the first victim, but rather its domestic competitors possessed of less advantages in manufacturing or less financial strength to withstand competition.

"The removal of the tariff, then, will not abolish combinations unless it abolishes the industry. The domestic competitors of combinations might be largely cut off by tariff reductions or removal, and the combination survive with moderate profits, and yet be forced to sell their products to domestic customers at much lower prices. But this sharpening of foreign competition by the removal of the tariff would, beyond any doubt, lead American combinations in some cases to enter into international combinations. Already we have the thread industry of England and of the United States, indeed, the thread industry of the world, largely in the hands of an international combination.

"The borax trade is also organized internationally, and there have been efforts to bring about an international iron and steel combination. In Europe many combinations have crossed national boundaries. The advocates of lowering or removing the tariff in any line of industry should inquire carefully whether its effect might be to produce an international combination, and

if so, whether such an international trust would be desirable.

"The possible effects upon wages of a reduction or removal of duties must also be considered, and the further possibility of admitting to this country the surplus stocks of European manufacturers at rates so low as to seriously cripple our home manufacturers. If our manufacturers extend their foreign markets by selling at low rates abroad, they but follow the example of European manufacturers, who for years have disposed of surplus stocks in this country so as to keep their factories going to their full capacity. What can be gained by helping foreign trusts in order to hurt domestic trusts is not apparent."

Recommendations for Legislation.

Coming down to the subject of remedial legislation, the Commission states that three alternatives are presented, as follows:

"1. Congress may relegate to the States its power of control over interstate commerce, thus enabling each State to determine the conditions under which State corporations engaged in interstate commerce may do business within their boundaries.

"2. Congress may provide a Federal corporation law under which all corporations doing interstate business must be organized. In such a law Congress may make whatever provisions seems to it wise for the regulation and control of these corporations.

"3. There may be some modification of our present laws, which, by regulation measures, will define the control of Congress over corporations engaged in commerce between the States and with foreign nations."

After reviewing these alternatives at considerable length, the commission finally presents its conclusions in the shape of formal recommendations for legislation, as follows:

"Early in the year 1900 this commission submitted to the Congress a preliminary report of findings and recommendations on the subject of industrial combinations. Said report was in part as follows:

"'To prevent the organizers of corporations or industrial combinations from deceiving investors and the public, either through suppression of material facts or by making misleading statements, your Commission recommend—

"'*a*. That the promoters and organizers of corporations or industrial combinations who look to the public to purchase or deal in their stocks or securities should be required to furnish full details regarding the organization, the property or services for which stocks or securities are to be issued, amount and kind of same, and all other material information necessary for sale and intelligent investment.

"'*b*. That any prospectus or announcement of any kind soliciting subscriptions which fails to make full disclosures as aforesaid, or which is false, should be deemed fraudulent, and the promoters, with their associates, held legally responsible.

"'*c*. That the nature of the business of the corporation or industrial combination, all powers granted to directors and officers thereof, and all limitations upon them or upon the rights or powers of the members, should be required to be expressed in the certificate of incorporation, which instrument should be open to inspection by any investor.

"'The affairs of a corporation or industrial combination should be carried on, without detriment to the public, in the interest of their members and under their lawful control. To this end the directors or trustees should be required—

"'*a*. To report to the members thereof their financial condition in reasonable detail, verified by a competent auditor, at least once each year.

"'*b*. To inform members regarding the method and conduct of business by granting them, under proper restrictions, access to records of directors' meetings, or otherwise.

"'*c*. To provide for the use of members, before the annual meetings, lists of members, with their addresses and their several holdings.

"'*d*. To provide, in whatever other ways may be named in the certificate of incorporation, means whereby the members may prevent the misuse of their property by directors or trustees.

"'The larger corporations—the so-called trusts—should be required to publish annually a properly audited report, showing in reasonable detail their assets and liabilities, with profit or loss, such report and audit under oath to be subject to Government inspection. The purpose of such publicity is to encourage competition when profits become excessive, thus protecting commerce against too high prices and to guard the interests of employees by a knowledge of the financial condition of the business in which they are employed.'

"The further consideration given to the subject by this Commission has justified in nearly all particulars our former conclusions and recommendations. Since that report was made, combinations and their methods, both here and in Europe, have been more thoroughly studied. The influence of combinations in the United States in extending our foreign trade and the methods and influence of forcing combinations in competition with them have been observed. These matters are presented in accompanying volumes.

"We further recommend:

"1. That district attorneys of the United States be authorized and directed to institute proceedings for violations of the Federal anti-trust laws.

"2. That combinations and conspiracies, in the form of trusts or otherwise, in restraint of trade or production, which by the consensus of judicial opinion are unlawful, should be so declared by legislation uniform in all jurisdictions, and as to all persons, and such statutes should be thoroughly enforced.

"3. That stringent laws be enacted by Congress and the several State legislatures making both penal and criminal the vicious practice of discriminating between customers, and cutting rates or prices in one locality below those which prevail generally, for the purpose of destroying local competition, and that such laws should give to any person damaged the right to sue for and recover prescribed penalities, and make it the duty of prosecuting officers to proceed against the offenders.

"4. That to prevent overcapitalization, the several States' legislatures enact laws similar to the anti-stock watering laws of Massachusetts: also to provide for State supervision of all public service corporations, with power to recommend or regulate rates for service, and to pass upon the public need, desirability or exigency of any proposed new service.

"5. That plan three—Federal taxation and supervision—heretofore outlined, be adopted, and to accomplish its purposes—

"*a*. That an annual franchise tax be imposed upon all State corporations engaged in interstate commerce, calculated upon the gross earnings of each corporation from its interstate business, that the minimum rate of such tax be low, but that the rate be gradually increased with increases in earnings.

"*b*. That there be created in the Treasury Department a permanent bureau, the duties of which shall be to register all State corporations engaged in interstate or foreign commerce; to secure from such corporations all reports needed to enable the Government to levy a franchise tax with certainty and justice, and to collect the same; to make such inspection and examination of the business and accounts of such a corporation as will guarantee the completeness and accuracy of the information needed to ascertain whether such corporations are observing the conditions prescribed in the act, and to enforce penalties against delinquents, and to collate and publish information regarding such combinations and the industries in which they may be engaged, so as to furnish to the Congress proper information for possible future legislation.

"The publicity secured by the Governmental agency should be such as will prevent the deception of the public through secrecy in the organization and management of industrial combinations, or through false information. Such agency would also have at its command the best sources of information regarding special privileges or discriminations, of whatever nature, by which industrial combinations secure monopoly or become dangerous to the public welfare.

It is probable that the provisions herein recommended will be sufficient to remove most of the abuses which have arisen in connection with industrial combinations. The remedies suggested may be employed with little or no danger to industrial prosperity and with the certainty of securing information which should enable the Congress to protect the public by further legislation, if necessary.

"6. That if a Department of Commerce and Industry should be established, one of its functions should be to call attention from time to time to such economic changes in the world's progress as may suggest tariff modifications, and also to such commercial opportunities as may suggest reciprocal legislation or arrangements, and, furthermore, to any evils incident to combinations which changes in the tariff will correct.

"7. That in view of the extent and perfection of our manufactures, of our growing export trade and of the sharp competition it encounters in foreign markets, of the practice by some exporters of making lower prices abroad than at home, and of the desirability of protecting the consumer as well as the producer, without awaiting other legislation, the Congress provide for a commission to investigate and study the subject, and to report as soon as possible what concessions in duties may be made without endangering wages or employment at home, what advantages abroad may be obtained therefor, and also to suggest measures best suited to gain the ends desired.

"If experience shall prove that these remedies are not sufficient to properly control the great corporations and combinations, it may be wise for the Congress to enact a Federal corporation law. Should such a law be enacted, it would then be possible to increase the franchise tax upon State corporations engaged in interstate commerce, so as to compel them to organize under the Federal law. When organized under a Federal law, it would be possible, as has been pointed out, to apply to corporations any degree of publicity or restriction that might be authorized. In the meantime, the separate States should amend their corporation laws so as to require greater publicity, as outlined in our preliminary report.

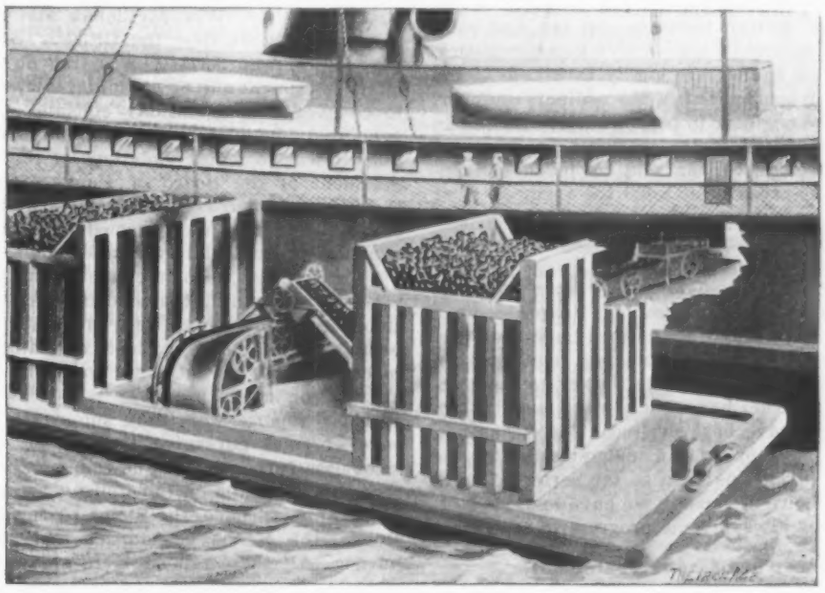
"The evils of discrimination in freight rates and their influence in aiding and promoting monopolies have been clearly shown. The recommendations of the Commission relative thereto will be found under 'Transportation.'"

These recommendations are signed by Commissioners Clarke, Penrose, Bard, Gardner, Bell, Otjen, Lorimer, A. L. Harris, Phillips, Conger, C. J. Harris, Kennedy, Litchman and Tompkins.

While signing this report, Commissioner Phillips submits a "supplementary statement," in which he reviews at length testimony gathered from various sources designed to show that certain combinations have followed illegitimate practices in competing with their independent rivals, and have made enormous profits at the expense of the producers of raw material and the consuming public. He therefore recommends the enactment of an elaborate inquisitorial scheme of publicity which would not only lay open the affairs of all corporations to Government inspection, but to that of their competitors as well. No other member of the Commission joins in this minority report. W. L. C.

The Bartlett Fueling Scow.

During the past summer the so-called "fueling scow" built by C. O. Bartlett & Co. of Cleveland, Ohio, was used for coaling the Cleveland and Buffalo passenger steamers. All the machinery necessary for the work is located on the scow. There are hoppers for holding as much coal as is desired, from 100 to 200 tons, more or less, as the occasion may require. As shown in the engraving, the receiving hoppers for coal are on the ends of the scow and in the center is placed the machinery, which consists of two elevators, the lower ends of which extend under each of the bins containing the coal, and a special heavy horizontal belt conveyor, which is entirely on the scow, about half of it passing down under the floor entirely out of the way. This is accomplished by an arrangement of wheels on a track, so that the lower end can pass down under the floor into the hold of the scow and, as it were, double up. When it is desired to coal vessels the scow is towed alongside of the steamer and fastened to it. The front end of the conveyor, or that part which is to be extended into the steamer over the bunkers, is arranged so that it may be raised or lowered at will by special screws driven by power, so that it may always be on a level with the floor of the steamer. The front end of the conveyor is then pushed out into the steamer over the bunkers and the whole machinery put into operation—that is, the slide is raised, allowing the coal to pass into the elevator, which raises it and discharges it onto the belt conveyor, where it is carried along and dropped into the bunkers. The conveyor is operated by a special engine, which is built near the front end of the conveyor. The other machinery is operated by another special double cylinder engine, steam being supplied by a 60 horse-power boiler. When enough coal has been delivered to the vessel the horizontal conveyor is backed up, the rear end passing down under the floor of the scow entirely out of the way.



THE BARTLETT FUELING SCOW.

Smoke Abatement in St. Louis.

We take the following from a valuable paper read before the Engineers' Club of St. Louis by William H. Bryan:

This discussion is limited to St. Louis, where the conditions surrounding the problem are as unfavorable as they could possibly be. Remedies effective here, therefore, may be accepted as equally so elsewhere.

St. Louis is naturally a smoky city. It is a busy city. Its industries cover a large volume and a wide variety of product. In no small degree does St. Louis owe its growth and its prosperity to its manufactures, and all good citizens are heartily in favor of encouraging them in every legitimate way.

St. Louis has come to be an important manufacturing center largely because of its proximity to the soft coal beds of Southern Illinois, scarcely a dozen miles to the east. These are apparently inexhaustible and are easily mined, making it possible to deliver this fuel to the consumer in St. Louis at exceedingly low cost. These coals leave much to be desired in many respects. They run high in volatile matter, moisture and ash, and comparatively low in calorific value, which characteristics, particularly the first named, are highly favorable to the making of smoke when burned in the ordinary manner. It is the duty of the engineer to point out how the smoke nuisance may be abated while continuing the use of the fuel which Providence has sent us in such abundance. We must be prepared to meet the argument that a smoky city means a busy and a prosperous city, and to show that the prevention of smoke by modern methods imposes no hardships on our industries.

The Engineers' Club of St. Louis has long taken the lead in this movement. A review of its proceedings shows that many papers and discussions have been presented. We have long had a standing committee on smoke, which has at intervals made reports to the club. These reports, it is true, have not always been as encouraging as might have been desired. There was not, in the early days, as thorough an understanding of the problem, nor had inventions been so far perfected as to give us the wide choice of remedy we have to-day. Nevertheless, there was always some progress to report.

Attempt Toward Smoke Abatement.

There has always been a strong sentiment that the emission of smoke should be controlled by ordinance, but it was felt that, for the time being at least, our energies could best be directed toward the education of the public and the development of improved furnaces. In 1888 Charles E. Jones and Charles F. White—both pioneers in the movement in this city, and both then members of this club, the former of whom is still with us—made a report to the president of the City Council which indicated that the forms of smoke abating apparatus then available for steam boilers cut down their capacity an average of 28 per cent., and that their use involved a slightly increased expenditure of fuel. There were then, as now, a number of boiler plants which were regularly worked beyond their normal or rated capacities, and for them there seemed to be no satisfactory way of controlling the smoke.

In the same year, 1888, Robert Moore read a paper before this club on "Smoke Prevention," which was a most able presentation of the status of the art at that time. It was a complete *résumé* of the local situation and will well repay study even at this day. It is interesting to note that the optimistic views then held by Mr. Moore were destined to be fully realized.

Substantial progress had been made in 1891, when Mayor Noonan appointed a committee of citizens to investigate local conditions and to report upon the entire situation, with a view of pointing out what could be done toward the reduction of the smoke nuisance, complaint against which had become widespread and persistent. This committee, composed of Col. E. D. Meier, Prof. W. B. Potter, Robt. E. McMath and Charles E. Jones, all members of this club, and familiar with the problem, at once accepted the task, and set systematically to work on the collection of data. On March 8, 1892, the committee made to a meeting of citizens, held at the Mercantile Club, a report which was studious and exhaustive, and which stands to-day as our highest authority. It is, indeed, the source and fount of wisdom for those who would study this problem thoroughly as it relates to St. Louis.

This report was shortly afterward repeated before this club and discussed at some length, after which it was published for general distribution. The committee recommended the passage of two ordinances by the Municipal Assembly, drafts of which were attached to the report. The first of these declared smoke to be a nuisance and provided for its suppression. The other established an expert commission, which was to canvass the city and determine what could be done. This commission was also to make tests of smoke preventing devices and smokeless fuels.

These ordinances were promptly introduced into the Municipal Assembly and were passed and approved by the Mayor in February, 1893. President Burnet of the Board of Public Improvements, with the approval of Mayor Noonan, appointed on this commission Prof. W. B. Potter, Capt. Wm. McClellan and the author.

At about that time the Citizens' Smoke Abatement Association was formed, with the object of educating public sentiment and of providing lawyers and inspectors to co-operate with the city officials. There were also appointed about this time two city inspectors, whose duty it was to report violations of the ordinance to the president of the Board of Public Improvements, who then took the necessary steps toward prosecution in the courts when that step seemed necessary. This expert commission immediately entered upon its work, beginning with a canvass of the smoke making plants, with a view of determining the conditions, if any, under which smoke could not be entirely prevented, such conditions being a valid defense against complaint. It was also to report whether or not there were practical methods of abating the smoke.

These reports were duly submitted, together with a code of rules governing tests to be made on alleged smokeless furnaces. In due course exhaustive tests and reports were made on the Boileau Furnace, the Hawley down draft furnace, the Standard furnace or automatic stoker, the Keene economizer and the Haxton base burner. All these reports were approved by the Board of Public Improvements and published. The commission also took up smokeless fuels, and made a series of trials and investigations upon coke, which report, however, has never been published. Another investigation into smokeless fuels of the character of Pocahontas was begun, but was not completed, owing to lack of funds.

During this time much other effective work was being done, both by the Citizens' Association and by the commission, the latter appearing before many bodies and meetings with a view of awakening a favorable sentiment. The members of the commission worked in close harmony with the Citizens' Association, and gave their advice free of charge to all inquirers looking for the best means of abating the smoke. In the consideration of the smoke problem we should not forget the very excellent paper by R. J. McCarty of Kansas City, Mo., read before this club in December, 1895.

In the meantime the Citizens' Association and the city inspectors were pushing their part of the work actively, the most serious offenders being taken in hand to begin with. Both before and after the expiration of the six months' period before the ordinance went into effect the owners of smoke making plants took up the question of abating the smoke, and large numbers of them put in effective appliances. The willingness and desire to comply with the ordinance were almost universal. Every effort was made to induce compliance by friendly means, and it was not until moral suasion had failed that prosecutions were undertaken in the courts.

Ordinance Illegal.

As is always the case, however, there were a few obstructionists who fought the ordinance, with the result that the now famous Heitzberg case was carried to the Supreme Court of the State, where, in 1896, very much to our surprise, the ordinance was declared in-

valid on the ground that the municipal legislature had exceeded its authority in declaring smoke a nuisance *per se*. This made it necessary to prove in each case that the particular smoke complained of had caused special and individual damage. This decision, while not in harmony with the views of many eminent legal authorities, as well as the decisions of many high courts, was nevertheless conclusive, and ended our efforts under the ordinance. In the revision of the municipal code in 1899 the smoke ordinance was rewritten to conform to the Supreme Court decision, but nothing has been done under it on account of the practical impossibility of proving damage in each case.

In spite, however, of the many difficulties encountered, and the final overthrow of the ordinance, great good has been accomplished. Disinterested and competent outside observers said that St. Louis had done more than any other city in this country, and that our smoke cloud had been reduced fully 75 per cent. The city records show also that at that time about 75 per cent. of the steam boilers in this city had been equipped with smoke preventing devices. Many of these have been kept in operation, so that our condition is not so bad now as it was before the original ordinance went into effect, although there has, of course, been some increase in the number of plants. Is it not reasonable to expect that even better results may be secured under the new ordinance?

Early this year the Executive Committee of the Citizens' Smoke Abatement Association, in conference with many leading citizens, prepared the draft of an act, to be introduced into the State Legislature, giving to cities of over 100,000 inhabitants the right to declare smoke a nuisance and to provide for its regulation. Such a law was duly passed and approved. In accordance with its provisions the Municipal Assembly of this city has passed a new ordinance, which was approved by the Mayor on August 21 last. He has now appointed a chief inspector and four deputies to enforce the ordinance.

What Is Smoke.

Having now brought the situation up to date, let us get an exact idea, if possible, as to what smoke is.

The constituents of all fuels may be classified as volatile matter, fixed carbon and ash. The ash is inert as regards smoke, except that when present in large quantities it greatly impedes the proper handling of the fires. The fixed carbon, with which we are familiar in the form of coke, is smokeless. The remaining constituent, the volatile matter, occurs in large percentages in our fuels, and is the one which causes the smoke.

When a fuel rich in volatile matter is charged into a furnace, the result is that the volatile matter is first set free as a gas, principally in the shape of hydrocarbons. Part of these are of what is known as the olefiant series. These are dissociated at a red heat, and part of the carbon is set free, which, if unconsumed, passes off, forming the visible smoke. It is possible to burn this free carbon, but to do so there must be sufficient oxygen present and the temperature must be high. Failing of either of these conditions, the furnace will smoke. All successful smoke abating devices work in the direction of meeting these two important requirements.

It was shown long ago, by careful experiments, that the amount of carbon in the densest smoke is very small—from one-sixth to one-half of 1 per cent. by weight. It has, however, an immense coloring power. You may, therefore, stamp as false all those claims of furnaces which offer to save fuel by consuming the smoke. It has, however, been shown repeatedly that the best forms of smokeless furnaces have made marked savings in fuel, not because they burn the smoke, but because of the improved construction and better engineering details, which bring about more favorable furnace conditions and result in more nearly perfect combustion. The best furnaces make a fuel saving more than sufficient to pay the interest on their cost, as well as repairs and maintenance.

Methods of Stopping Smoke.

Broadly speaking, there are three methods for stopping the smoke: First, the shutting down of smoke making plants; second, the use of smokeless fuels; third, the burning of our ordinary fuels smokelessly.

Heroic as it may seem, much good has already been accomplished by the actual shutting down of plants. A few years ago the city was dotted with small factories, each with its smoke making boiler. To-day most of these are operated by electric motors, supplied from central stations located at a distance and provided with smoke preventing apparatus. Many buildings get their entire service of light and power from the street mains, operating their boilers only for heating during the cold months. This practice may be expected to grow as electricity becomes cheaper and is distributed over wider areas. It does not take the eye of a prophet to look into the not distant future when our generating plants will be located across the river, or at the coal mines themselves.

Much has been done in smokeless fuels, and they are already in extensive use in this city, particularly for heating, in the residence districts, and for many special operations. Indeed, it is not too much to ask of the average good citizen that he will go to some little extra expense if necessary to aid in beautifying the city. This, however, could not be expected under steam boilers, which are our largest smoke producers. I had hoped that the oil from the newly opened Texas fields could be introduced here at something like reasonable cost, but present rates appear to be prohibitive. Oil has many advantages, however, which would warrant some increase in cost over coal. In addition to solving the smoke problem, it greatly reduces the labor charge, can be handled and controlled much more easily and usually permits an increase in the working capacity of the plant. On the other hand, however, the elements of danger and of odor should not be overlooked.

As indicating in a general way what may be done under boilers with the various fuels coming to this market, I have prepared the following table. No claim is made for the absolute accuracy of the figures, but they are believed to be fairly reliable, relatively at least. A glance is sufficient to show that the smokeless fuels are out of reach in cost, except as the use of powdered coal may be developed:

Fuel.	Cost. Dollars.	Calorific value. Heat units.	Efficiency. Per cent.	Equivalent evaporation in pounds of water.	Cost of evaporating 1,000 pounds of water.
	Per 1,000 cubic feet.	Per 1,000 cubic feet.		Per 1,000 cubic feet.	Cents.
Fuel gas	0.10	240,000	80	198.8	50.30
	Per ton of 2,000 pounds.	Per pound.		Per pound.	
Anthracite	6.75	14,000	75	10.87	31.08
Texas oil	8.08	15,950	80	13.22	30.56
Coke	4.50	12,500	70	9.05	24.87
Pocahontas	4.75	13,300	72	9.90	24.00
Big Muddy	2.50	12,200	68	8.57	14.60
Mt. Olive, lump	1.60	11,200	65	7.53	10.62
Powdered coal	1.25	10,000	80	8.28	7.55
Common slack	0.90	10,000	60	6.20	7.25

The deliveries in this table are assumed to be on cars at consumer's switch. The oil weighs 7.43 pounds per gallon and costs 3 cents per gallon, 2½ cents of which is freight. The oil companies hope to reduce the price in the near future to $1 per barrel of 42 gallons, but even at that figure it would still fall short of competing with coal in the St. Louis market, even after an addition of 40 to 50 cents per ton for coal and ash handling is made.

The outlook for oil is much better if, instead of burning it under boilers, it be used in oil engines of the Diesel or other modern type, which consume about ¾ pound of oil per indicated horse-power hour, at a cost of 0.30 cent. The ordinary Corliss engine uses about 4 pounds of Mount Olive coal per indicated horse-power hour, costing 0.32 cent. In the table above it is assumed that the powdered coal is made from ordinary slack, at an additional cost of 35 cents per ton for powdering. As a matter of fact, this charge would be offset by the saving in labor for coal and ash handling.

After all, however, our greatest hope for immediate relief must come from the successful burning of our

ordinary fuels smokelessly. As the largest offenders are the steam boilers, they only will be discussed.

Devices without number have been invented for this purpose, but, unfortunately, most of them have failed to meet the exacting requirements of regular service. These failures have led some good citizens, who have spent money fruitlessly, to believe that the problem is beyond solution.

It should be remembered that the ordinary furnace, without a special device, can be so handled as to greatly reduce the smoke, providing, of course, it is not overworked. It is not absolutely necessary, therefore, to buy a patent furnace in order to control the smoke, nor, as will be shown later, will the purchase of improved apparatus of itself control the smoke or insure the owner against prosecution. A deep furnace, high bridge wall, ample grate surface and good draft are essential to a good smoke record. Such a furnace, if skillfully fired, will make no serious smoke when working up to, say, two-thirds of its rated capacity. By skillful firing is meant the charging of alternate doors with small and uniform quantities of fuel, particularly if the coking system of firing is used. The firing of consecutive doors, at long intervals, with large quantities of fuel and by the sprinkling method is responsible for a very large proportion of the present smoke nuisance.

Devices for Preventing Smoke.

If the furnace, however, is not well designed, or is overworked, no amount of skill or care will keep the smoke within bounds. In such cases resort must be had to special apparatus. Successful devices and processes may be divided into five general classes:

1. Steam jets. These are the simplest devices in use and they can be put together by any engineer at small expense. Sometimes they are placed under the grates, discharging into the ash pit, but more usually they are above the grate, immediately over the fire doors, or in the side walls, discharging backward or across and slightly downward. The steam jet draws in air and discharges it at high velocity immediately above the fuel, where it meets the gases being given off by the disintegrating fuel.

Devices of this character have come into extensive use. They are reasonably effective in reducing smoke, but are not usually economical in fuel. The jets are often allowed to blow continuously, but it is better to turn them on at the time of firing and then shut them off in two or three minutes, after the fresh fuel has become ignited. In some devices this is done automatically, the act of opening the fire door turning on the jet and clock work or dash pot mechanism gradually closing it. The objections to such devices are their first cost, their complicated character and the necessity for some attention and adjustment for fluctuating service.

In Fig. 1 is shown a simple device of this type, using air preheated in ducts in the side and end walls of the furnace.

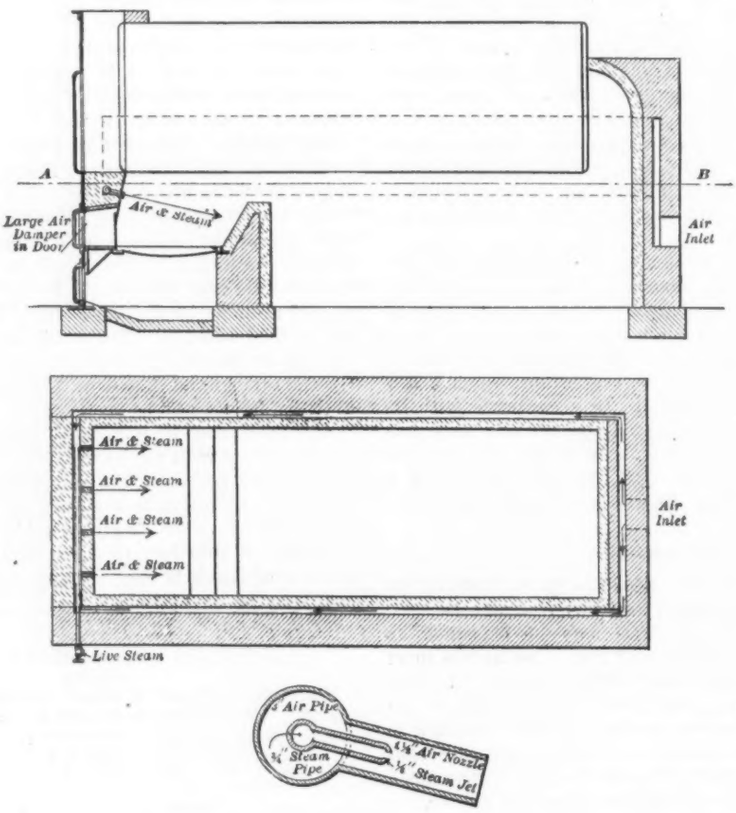


Fig. 1.—Steam Jet Device Using Preheated Air.

SMOKE ABATEMENT IN ST. LOUIS.

2. Cooking furnaces or fire brick arches. These come next in first cost and are capable of giving almost perfect results in smoke abatement if properly designed and intelligently operated. The fire box is kept well away from the cooling effect of the heating surface and can therefore be maintained at high temperature. Contracted checker work, or throat areas, insure a thorough mixture of air, which is often preheated. These are built in many forms, many of which are capable of burning very inferior fuels. They are excellently adapted to plants where the service is reasonably uniform. The objections are that some forms require an increase of space, and the brick work, if not properly constructed, may not be durable and repairs may be large. These objections, however, have been very largely remedied in the best types. There will usually be a material saving of fuel over the common setting if properly constructed and operated. Figs. 2 and 3 show successful forms of this type, the former representing the Reynolds and the latter the Kent furnace.

3. Down draft furnaces. These have proved very successful in many instances and they have come into

extensive use, particularly where excessive demands for overwork are frequently made.

In the Hawley, one of the best known forms, there are two grates, one above the other. The upper grate is a row of water tubes, single or staggered, so connected as to form a part of the circulation system of the boiler. Grates of the ordinary patterns would not withstand the high temperatures. The tubes are inclined upward to the rear to insure rapid circulation. The space above the rear drum is closed off, and the gases must make their exit downward through the bed of fuel. Considerable partly burned fuel falls to the lower grate, where its combustion is completed under very

4. Automatic stokers, with which may be classed under feed devices and chain grates. These have come into extensive use, particularly in large modern plants. While they are built in many forms, they all operate on the same principle—that of feeding the coal automatically to the grates in continuous and regular amounts. Most of them are designed for the use of the finer grades of coal, such as nut, pea or slack. In many localities there is a surplus of this fuel and its cost is low, but the increasing demand is raising the price and reducing the supply. Many recent stoker plants are provided with crushers to permit the use of the larger sizes of coal when necessary. When accompanied by

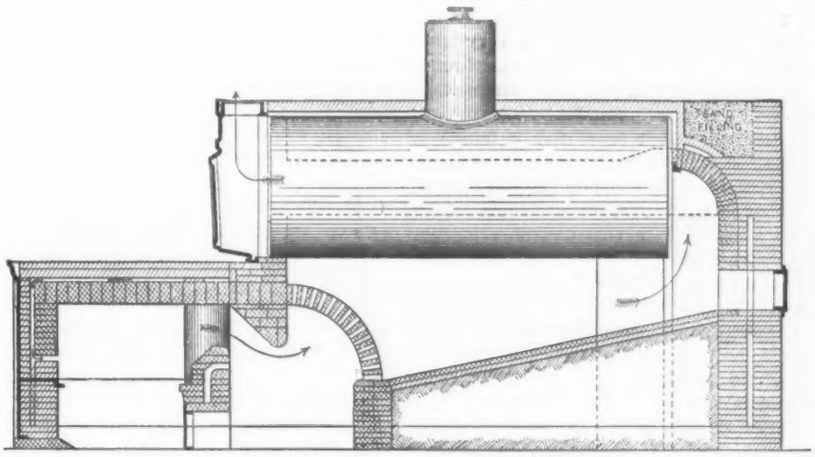


Fig. 2.—Fire Brick Arch.

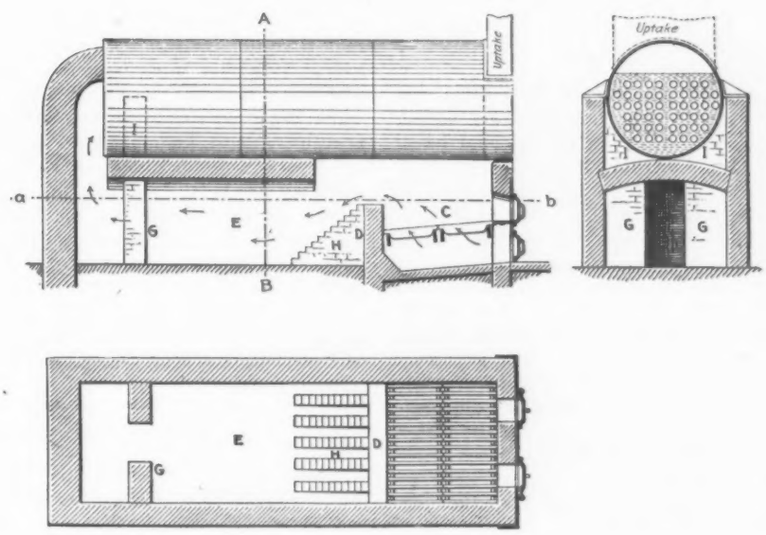


Fig. 3.—Wing Wall Furnace.

SMOKE ABATEMENT IN ST. LOUIS.

favorable conditions. The two flames unite at the rear of the grates, forming a throat through which it is almost impossible for the particles of free carbon to pass unconsumed. Somewhat greater draft is usually required for this furnace than for the common setting. Most of the air required for combustion enters through the doors above the upper grate only, a small amount being admitted under the lower grate. This furnace is independent of the skill or ignorance of the fireman to a greater degree than many others. The objections are its first cost and the fact that it is a part of the pressure system of the boiler. With bad water or careless or inefficient handling, there is great liability to tube and drum repairs. It usually effects a considerable saving in fuel.

coal handling and storage plants, the automatic stoker reduces the labor required in the fire room, and this arrangement has been adopted in many large modern plants. The ability of the stoker to maintain practically uniform steam pressure and the fact that the air supply is nearer the theoretical requirements are features which have contributed largely to its success.

The objections to automatic stokers are: 1, Their cost; 2, the complication of parts and the necessity of repairs; 3, the steam required to operate them. Under proper conditions there is a material saving both in fuel and labor. That the objections named are not serious is shown by the fact that their use is constantly increasing. The fuel to be burned should have expert study, however, before a device of this kind is selected, as they

are not equally well adapted to all fuels. Some do not respond to fluctuating loads and to overwork as well as other types of furnaces.

Well-known and successful forms of stokers are the Roney stoker and the Green traveling link or chain grate.

5. Powdered fuels. These have recently attracted much attention, having been employed successfully in rotary cement kilns, and more recently under boilers to a limited extent. Experiments along this line have been going on for some time in European countries with considerable success. In the most satisfactory devices the coal is reduced to an almost impalpable powder, and is then forced into the furnace under pressure, exactly as would be done with oil or gas. Among the greatest advantages of this fuel is the fact that it may be made of slack or mine waste, which can be had at very low cost. While the apparatus for burning the fuel is simple and inexpensive, the plant necessary for preparing the fuel is somewhat elaborate. As the fuel is liable to spontaneous combustion, it cannot be stored or handled in large quantities, but should be used as fast as made. This would seem to call for a powdering plant at each point of use. I am of the opinion, nevertheless, that good results may be looked for in this direction in the not distant future. The classes enumerated above are not always clear and distinct, as the types named are often found in combination. The fire brick arch, for instance, is nearly always found in combination with the stoker and often with the steam jet.

The fire boxes of locomotives and of steamboats require special treatment, but brick arches or steam and air jets have given good results. The best work is done when the two are combined. The arrangement is, of course, not economical in fuel, although it is not particularly wasteful. Some experiments have also been made with down draft furnaces, with promise of success. Oil is admirably adapted for locomotives and is already in extensive use where the cost will permit. It is urgently recommended that larger grate and heating surfaces be provided wherever possible.

I am unhesitatingly of the opinion that some one or more of these devices is applicable to every smoke making boiler in St. Louis, and that, too, without hardship. The greatest care, however, must be exercised, first, in selecting the apparatus to be sure that it is adapted to the service; second, in seeing that it is carefully applied so as to be reliable and durable, and, third, that it is intelligently operated and maintained. The last is, perhaps, the most important of the three. No apparatus, however efficient, can be expected to run itself. Give it a chance; see that it is taken care of and kept in repair, and not abused.

It is to be hoped that the city of St. Louis will itself set a good example in this matter. Under the old ordinance work was handicapped by the fact that the water works plant, public buildings and school houses were very slow in stopping their smoke. It was hard to answer the argument offered in defense that the city itself was one of the greatest offenders.

The Magnolia Metal Company have purchased a commodious office building and factory at 113-115 Bank street, New York, to be occupied immediately. The factory will be fitted with modern appliances for manufacturing their specialties, Magnolia, Defender, Mystic and Adamant metal and all grades of babbitt metals, from genuine to No. 4, as well as solder, electrotype, linotype, stereotype metals, special metals, railroad brasses, &c. The company have factories at New York, Stirling, N. J., Chicago and Montreal.

It is reported that the Eastern Minnesota-Great Northern interest is to increase the length of its new ore dock on Allouez Bay, Superior, Wis., 6000 feet, adding 100 pockets representing 30,000 gross tons, and giving the entire dock a storage capacity of 100,000 gross tons. This, it is said, will make the dock the largest ore shipping structure in the world. It is also the highest, being 72 feet from the water to the top of the rails. The Eastern Minnesota road expects to ship 3,000,000 tons the coming season.

Labor in the United States and in England.

William Garrett, the well-known rolling mill engineer of Cleveland, Ohio, addressed a communication to the editor of the *Iron and Coal Trades Review* of London on the wire industry in which he touches also incidentally on the question of the relative intelligence of English and American labor. He says:

While I am not an Englishman myself, yet upon the whole, after what I have experienced among men, I find by far the most intelligent and best workmen are Englishmen.

Mr. Turner also added that mischief was sometimes done by snubbing men. This I claim to be one of the greatest evils in the workshops of Great Britain. I may cite a personal experience in this connection. When quite a young man, and employed in one of the iron works in the West of Scotland, the material we were producing was not marketable. I made a suggestion to the manager, who was also part proprietor, by way of a change, thinking it would remedy the evil. I was insolently told that I was paid for working, while he was paid for thinking, and I was to go and attend to my work. This taught me the lesson never again to make any suggestions to a British manager, so I came to this country, where suggestions from the meanest laborer are received as kindly and as courteously by the proprietor as suggestions from the chief engineer. I do not doubt for a moment the case that Mr. Turner mentioned of the molder who was snubbed in this same way, and who to-day fills a prominent position in America.

While an American subject, I still have a great love for my mother country, and I can say, after living in this country 34 years, and noting carefully the qualifications required to make a good workman, that I cannot find anything in favor of the American workmen over the British workmen, providing the British workman were treated in the same way as his American cousin; and this, too, in spite of my being aware of the fact that the British workmen of to-day have a great aversion to the introduction of improved machinery. The spirit that has been shown in this direction is the spirit that has been driven into them by the petty tyranny, almost amounting to abuse, in past years by employers, and mainly from petty "gaffers." While this may not be the general rule, it is by no manner of means an exception. In spite of all the talk and boasting of the Americans, on the one hand, and the pessimistic views of some of the British on the other hand, I, for one, firmly believe that Great Britain will eventually assert herself, and once more become, if not the first in the manufacture of iron and steel, pretty well next to that first, which, I believe, will continue to be the United States.

A New Blast Furnace at Toledo.

CLEVELAND, OHIO, February 10, 1902.—It develops that the large blast furnace to be erected at Toledo is to be built by Pickands, Mather & Co. of this city. A member of the firm informed the correspondent of *The Iron Age* that the plant will have a capacity of from 350 to 400 tons per day. The firm have purchased a site on the Maumee River, convenient for ore docks, which will be erected on the river front. It is probable that three Brown conveying machines will be erected on the dock to handle the ore consumed by the furnace. In addition to the furnace there will be a large power house and a machine shop. The products will be malleable pig, foundry iron and Bessemer. Plans for the plant are being prepared by Julian Kennedy of Pittsburgh, and contracts for erection and equipment will be placed as soon as possible.

Toledo was selected as the point at which the furnace is to be erected, partly because of its convenience to the market, which it is desired to reach with the production, and partly because of its promised efficiency as an ore receiving port. The straight channel through Maumee Bay, with a mean depth of 21 feet, which is about to be completed, will afford an entrance to the port to the deepest draft vessels. It is expected that the plant will be blown in before the close of the year.

The Goldschmidt Welding Process.

The application of the Goldschmidt welding process for welding rails has lately undergone a simplification, according to a report in the *Zeitschrift des Vereins Deutscher Ingenieure*, Vol. XLV, p. 1545. The crucible in which the required quantity of thermite is to be melted is made in the form of a funnel, about 16 inches in hight and 12 inches in diameter at the top. The bottom end is provided with an opening about ¾ to 1 inch in diameter, which serves as a pouring hole. An iron plug is used to close the hole during the reaction, and the hole is freed preferably by knocking this up into the liquid mass, when it is at once fused. In this way the precise moment for discharging the contents is easier to regulate than by allowing the plug to remain in position until melted out. The top of the plug should be covered with a little fine dry sand to prevent it burning out too soon. After filling the crucible, the open upper end is covered with a metal hood, provided with a hole, through which the contents are ignited. This arrangement has the advantage that the metal flows into the mold before the slag, whereas in the ordinary crucible the slag always runs off first. The loss of heat by radiation is much reduced, and the lining is not exposed for so long to the heat of the thermite, since the time it remains in the crucible is no more than what is just required for the reaction—that is, a few seconds only. In welding objects, the surface on which the thermite is poured is first cleaned with a file, but the abutting ends of the rails or bars need not be touched at all.

Further applications of the Goldschmidt method for the production of high temperatures are described by H. Goldschmidt in *Stahl und Eisen*. Its use in welding is especially referred to, and it is pointed out that through its aid chromium and manganese are now being manufactured on a commercial scale. The manufacture is effected in large crucible like vessels in which some hundredweights of the metal are made at each operation. The reaction is so rapid that this operation requires only about half an hour for its completion. While the carbon free chromium made is utilized in particular for steel, the pure manganese is used for the manufacture of copper manganese alloys. Up to now the only form in which chromium has been available to the steel manufacturer was as ferrochrome, containing from about 40 to a maximum of 65 per cent. of chromium. This product contains usually from 10 to 12 per cent. of carbon, calculated on the chromium contents. The chromium is, therefore, present in ferrochrome, not as the free metal, but as a chromium carbide. All steels, therefore, that are produced with the aid of ferrochrome are, strictly speaking, not chrome steels, but chrome carbide steels. With the pure chromium other alloys can therefore be made which have other properties. Thus, for instance, they are less hard. It is possible, too, by the use of metallic chromium, to make chrome steels with a much higher chromium contents than has been hitherto possible, owing to the simultaneously high carbon contents which would otherwise have to be present. In the open hearth process the chromium is added toward the end of the operation; at a time, that is, when the introduction of impurities is most objectionable. The loss by oxidation when high percentage ferrochrome is used amounts to from about 20 to 25 per cent., but is considerably less when pure chromium is employed. If it is a question of producing chrome steel of, say, 2.5 per cent. chromium, and with 0.2 or even 0.1 per cent. of carbon, pure chromium must be employed. Otherwise the carbon contents could not be kept below 0.30 or 0.35 per cent. In the manufacture of crucible cast steel also, when it is desired to produce a metal with only from 1 to 2 per cent. of chromium, the metallic chromium is especially valuable. Further, in the case of the manufacture of high chromium tool steels, with 6 to 10 per cent. of chromium, metallic chromium is utilized. One works is indeed endeavoring to increase still further the chromium contents in metal to be used for tool steel.

Metallic manganese has not found the same application to steel manufacture as has been the case with chromium. In the first place, manganese steels have been less in evidence than chrome steels, and then, too, the relatively high cost of the metallic manganese has stood in the way of its utilization. Thus its cost, as compared with the ferromanganese commonly employed, is about ten times as great. It has, however, been largely utilized of late in the manufacture of alloys with copper. Pure manganese oxidizes very slowly in the air, and forms alloys with considerable facility.

The Goldschmidt method is used also to manufacture pure alloys of iron and manganese with titanium. It is possible to produce in this way alloys of iron and manganese containing 40 per cent. of titanium, but these only melt at so high a temperature that it has not been found desirable to make the commercial product contain more than 20 to 25 per cent. of titanium. The addition of this alloy to the iron must be effected at a high temperature. Such small additions of titanium as a few tenths per cent. are stated to give iron and steel a very tough, fibrous structure. It has recently been found that titanium will alloy much more freely twith manganese than with iron, and instead of the ferrotitanium a manganese titanium with from 30 to 35 per cent. of titanium has been made. If this alloy is used, twice as much manganese is introduced into the metal under treatment. As, however, usually only 0.1 to 0.2 per cent. of titanium is required, the additional manganese contents does not matter. This manganese titanium is more readily dissolved by ingot iron than the iron alloy. A better method of introducing the titanium consists, however, in its addition in a nascent state, by the addition of so-called manganese titanium thermite to the ladle containing the molten iron. The titanium takes up dissolved nitrogen, the resulting red crystals having been subsequently found by micrographic investigation.

The Wright Taper Roller Bearing Company.—The Wright Taper Rolling Bearing Company have been incorporated, with a capital of $900,000, and it is understood that the first manufacturing done by the company will be in Niagara Falls, for all it has been intimated that the company intend locating in Buffalo. The product of the company will be an anti-friction taper roller bearing for automobiles, bicycles, road vehicles, line shafting and electric and steam railways. The patents under which the company will operate are held by W. Hamilton Wright, who also holds patents for all the countries of Europe. The directors named in the incorporation papers are: Lewis J. Bennett, president, Buffalo Cement Company; William B. Rankine, vice-president, Niagara Falls Power Company; Eugene A. Georger, president of the German Bank, Buffalo; W. Hamilton Wright, Hon. John Laughlin, James P. Wood, Albert G. Thorne, Col. J. H. Horton, Chester G. Smith, of Buffalo; Col. C. B. Gaskill and William A. Philpott, Jr., Niagara Falls. The roller bearing has come into quite general use abroad and is meeting with success. It has already demonstrated its great value, both in saving of power and in durability, and is fixing its status as one of the most far-reaching inventions of the age. In London a wealthy syndicate have been organized to control Mr. Wright's patents in Europe.

Braddock Machine & Mfg. Company.—The business of the Braddock Machine & Mfg. Company, at Braddock, Pa., has changed hands and has been absorbed by a new company, of which A. R. Peacock is president, G. C. Shade vice-president and general manager, and A. H. Eames secretary and treasurer. The Braddock Machine & Mfg. Company have a well equipped plant at Braddock and are manufacturers of sheet, tin plate, wire and wire nails, and have a large amount of work on hand. The new concern will enlarge the present plant and install additional equipment, consisting of iron working tools and other appliances.

The manufacturers of screw and shafting stock have formed a close association, the total output of this class of steel last year having been 115,000 tons. A meeting of the association, at which officers were elected, was held in Pittsburgh last week.

Fluctuations in the Prices of Metals Since 1890.

[With Supplement.]

Our diagram shows in a striking manner the fluctuations in the prices of the leading metals during and since 1890, the period having been one of extraordinary changes from affluence to misery. During that period our country has more than doubled its production of copper and occupies the commanding place in that branch of the metal trade. The lead industry has gone through some very interesting phases, notable among them being that our refiners and desilverizers are treating, in boud, very large quantities of foreign metal. The zinc industry has developed with the expanding demand and at times we have become important contributors to the world's requirements. In tin we are still entirely dependent upon foreign sources of supply, and our requirements have largely increased, particularly since we have practically captured our home market for tin plate.

Our diagram is based upon the following averages of monthly quotations, which we append for reference:

Prices of Copper, Tin, Lead, Spelter and Tin Plate.

1890.

	Copper. Cents.	Tin. Cents.	Lead. Cents.	Spelter. Cents.	Tin plate. Cents.
January	14.25	20.92	3.82	5.44	4.72
February	14.40	20.70	3.79	5.32	4.61
March	14.35	20.39	3.91	5.15	4.46
April	14.25	19.94	3.87	5.00	4.39
May	14.75	20.77	4.13	5.22	4.36
June	15.87	21.56	4.37	5.50	4.39
July	17.00	21.07	4.43	5.45	4.43
August	17.05	21.30	4.51	5.55	4.65
September	17.00	22.92	4.86	5.75	5.17
October	16.75	22.85	5.21	6.00	5.41
November	16.75	20.80	4.90	6.07	5.41
December	15.87	20.78	4.19	6.17	5.25

1891.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	14.90	20.18	4.34	5.70	5.35
February	14.37	19.92	4.28	5.09	5.47
March	13.94	20.05	4.32	5.06	5.37
April	13.75	19.94	4.20	5.02	5.26
May	13.37	20.24	4.25	4.86	5.16
June	13.00	20.75	4.41	4.92	5.35
July	12.72	20.36	4.39	5.10	5.28
August	12.22	20.06	4.44	5.06	5.39
September	12.37	20.05	4.50	4.97	5.44
October	12.06	20.08	4.34	5.05	5.39
November	11.40	19.91	4.17	4.83	5.30
December	10.68	19.85	4.00	4.74	5.30

1892.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	10.90	19.75	4.17	4.64	5.30
February	10.67	19.62	4.11	4.60	5.30
March	11.20	19.70	4.16	4.55	5.30
April	11.95	20.31	4.22	4.67	5.30
May	12.00	20.84	4.21	4.80	5.30
June	11.87	21.58	4.12	4.84	5.30
July	11.42	20.69	4.10	4.79	5.25
August	11.67	20.65	4.02	4.67	5.21
September	11.40	20.25	4.07	4.61	5.20
October	11.43	20.39	3.90	4.44	5.27
November	11.87	20.50	3.78	4.44	5.45
December	12.22	19.68	3.74	4.38	5.47

1893.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	12.31	19.93	3.80	4.35	5.35
February	12.10	20.15	3.89	4.31	5.35
March	11.86	20.77	3.91	4.27	5.35
April	11.45	20.59	4.02	4.37	5.50
May	11.03	20.03	3.82	4.50	5.50
June	10.85	19.53	3.61	4.22	5.41
July	10.37	18.94	3.40	4.07	5.31
August	9.81	18.67	3.27	3.77	5.30
September	9.85	20.31	3.72	3.75	5.26
October	9.75	20.80	3.40	3.64	5.37
November	10.00	20.56	3.29	3.69	5.35
December	10.43	20.50	3.21	3.80	5.32

1894.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	10.12	20.20	3.12	3.50	5.27
February	9.78	19.67	3.18	3.75	5.22
March	9.56	18.82	3.24	3.83	5.20
April	9.50	19.80	3.21	3.62	5.19
May	9.37	19.97	3.19	3.48	5.15
June	9.06	19.60	3.10	3.46	5.15
July	9.12	19.07	3.10	3.50	5.12
August	9.06	18.34	3.17	3.45	5.12
September	9.34	16.20	3.07	3.46	...
October	9.69	15.37	3.02	3.45	4.12
November	9.48	14.38	3.00	3.38	4.09
December	9.77	13.79	3.00	3.26	4.00

1895.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	9.95	13.47	3.07½	3.32	3.95
February	9.67½	13.42	3.10½	3.15	3.90
March	9.39⅝	13.57	3.10	3.20	3.87½
April	9.53⅛	14.01¼	3.08¼	3.27½	3.80
May	10.25	14.53	3.16	3.47	3.75
June	10.68¾	13.94⅜	3.28	3.71¼	3.75
July	10.81¼	14.17½	3.32	3.70	3.80
August	12.10	14.26	3.52	4.07½	3.80
September	12.37½	14.37½	3.36⅞	4.26¼	3.80
October	11.92½	14.60	3.33	4.16¼	3.80
November	11.36⅜	14.46¼	3.23¾	3.67¾	3.80
December	10.56¼	13.81¼	3.26¼	3.48¾	3.80

1896.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	9.97½	13.16	3.07	3.88½	3.50
February	10.62½	13.36²/₃	3.15⁵/₆	4.06²/₃	3.46²/₃
March	11.03⅛	13.35	3.16¼	4.13¾	3.37½
April	10.78	13.39	3.06	4.13½	3.40
May	10.99	13.51⅞	3.03¾	4.08⅛	3.38¾
June	11.65½	13.45	3.01¼	4.05	3.40
July	11.27½	13.51	2.97½	4.12	3.44
August	10.87½	13.33¾	2.74⅜	3.81¼	3.43¾
September	10.75	13.17½	2.71¼	3.63¾	3.43¾
October	10.70	12.72	2.77½	3.71	3.41
November	11.25	13.03⅜	2.91⅞	4.03⅛	3.41¼
December	11.40	12.87	3.03¾	4.17½	3.40

1897.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	11.78⅛	13.25⅝	3.05	4.02½	3.40
February	12.00	13.47½	3.22½	4.06¼	3.08¾
March	11.87½	13.40	3.38¾	4.12½	3.01⅞
April	11.50	13.23	3.33½	4.11	3.20
May	11.96⅞	13.37½	3.26¼	4.17½	3.22¼
June	11.03⅛	13.68¾	3.30	4.25	3.20
July	11.10	13.92	3.68	4.27	3.06
August	11.12½	13.86¼	3.81¼	4.28¾	3.10
September	11.25	13.71	4.12⅝	4.14	3.16
October	11.12½	13.73¾	4.12½	4.10	3.11⅛
November	10.84⅜	13.77½	3.81¼	3.88¾	3.10
December	11.07½	13.68	3.70½	3.75½	3.09

1898.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	11.00	13.77½	3.66¼	3.75	3.05
February	11.18¾	14.03¾	3.68¾	3.78¾	3.02½
March	11.95	14.26	3.71	4.00	2.90
April	12.05½	14.41¼	3.60⅝	4.00	2.90
May	12.03¾	14.54¼	3.64⅜	3.95	2.88¾
June	11.85	15.05	3.86½	4.65½	2.85
July	11.58¾	15.60	3.94¾	4.51¼	2.83¾
August	11.85	16.13¾	3.99¼	4.35	2.81⅞
September	12.25½	16.02	3.99½	4.62½	2.85½
October	12.37½	17.25	3.80⅝	4.61¼	2.75¼
November	12.68¾	18.07½	3.70	5.08¾	2.80
December	12 79	18.20	3.62²/₅	5.13⅛	2.89

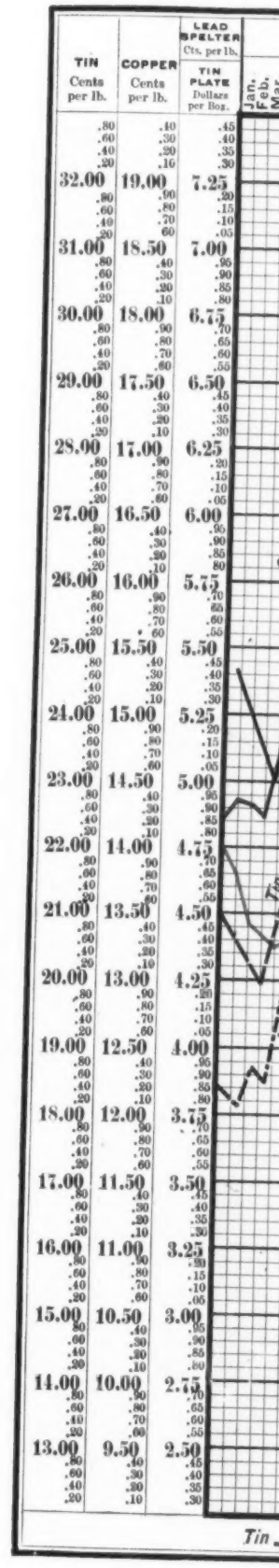
1899.

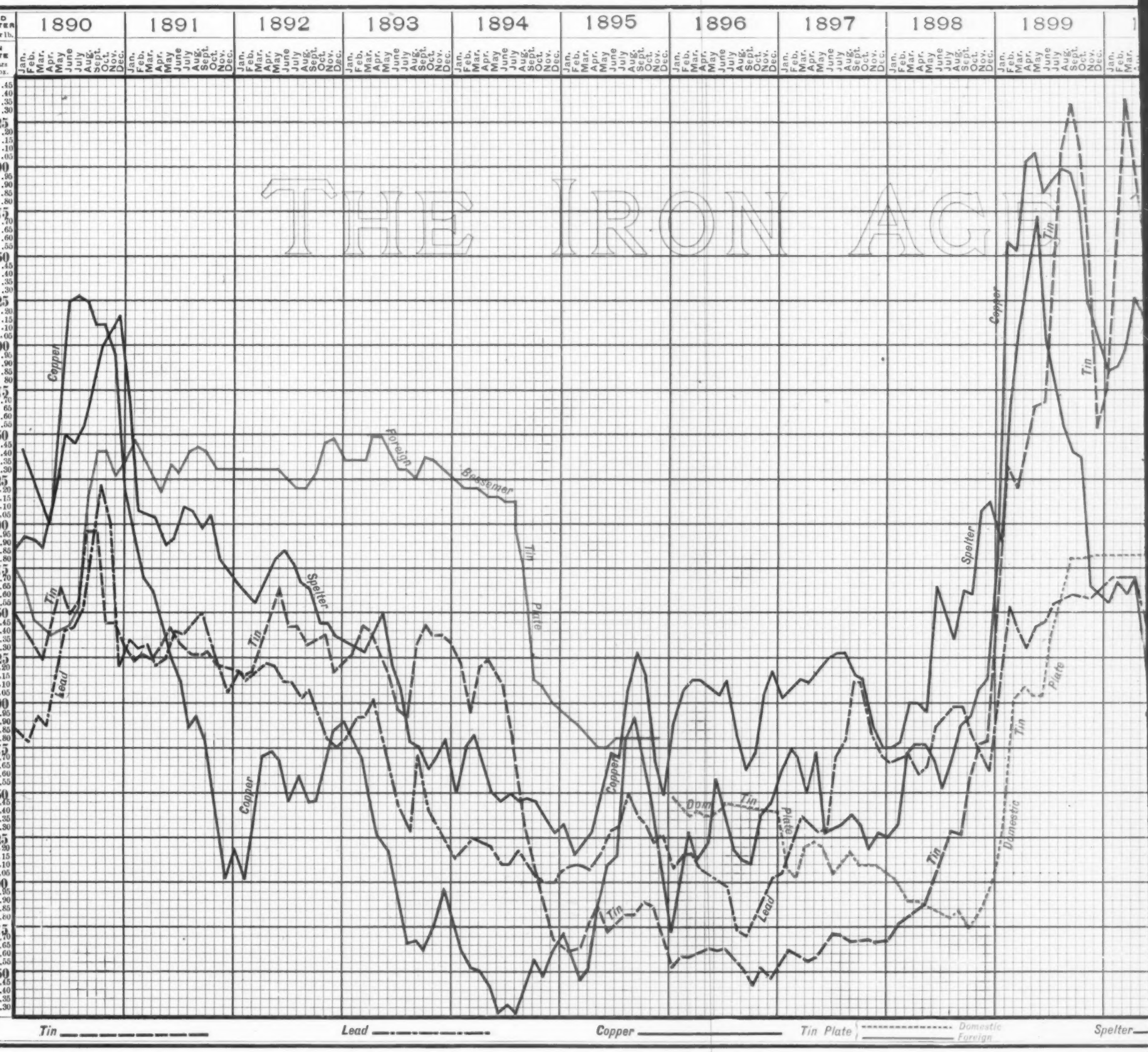
	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	14.02⅝	22.12½	4.01⅞	4.90	3.11¼
February	17.66¼	24.25	4.53⅛	5.63¹/₃	3.50¼
March	17.55	23.86	4.37½	5.99	4.03½
April	18.56¼	24.81⅞	4.30	6.35	4.10
May	18.65	25.61¼	4.42	6.72½	4.05
June	18.20	25 69	4.45	6.02	4.05
July	18.37½	28.72½	4.55	5.78¾	4.38¹/₃
August	18.50	31.40½	4.56½	5.55½	4.60³/₁₀
September	18.46⅞	32.40	4.60	5.40	4.82½
October	18.03⅛	31.35	4.59⅜	5.37½	4.82½
November	17.00	28.52	4.58	4.64	4.83¹/₁₀
December	16.68¾	25.18¾	4.65	4.60⅜	4.84

1900.

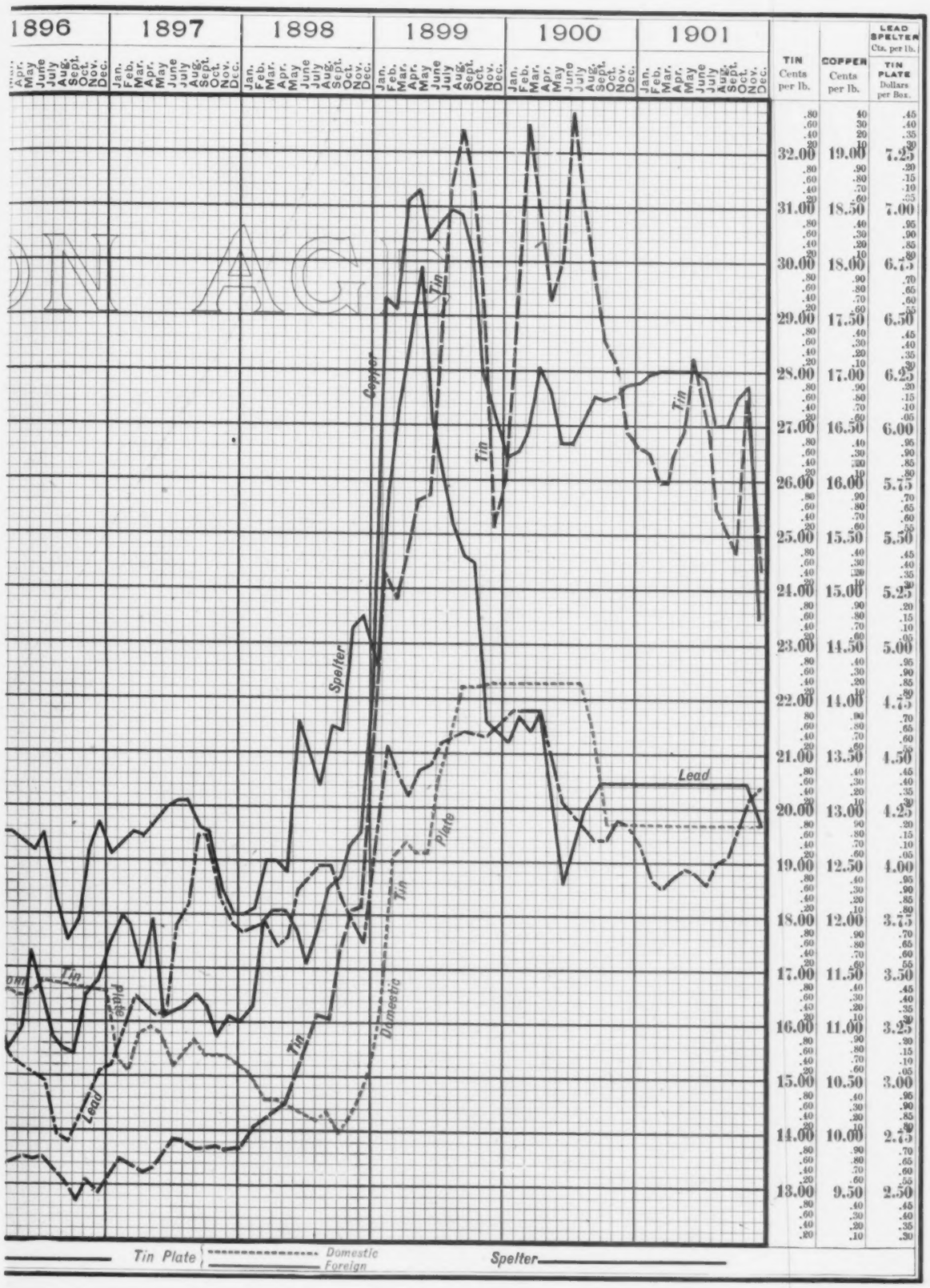
	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	16.21⅜	26.00	4.70	4.55	4.84
February	16.25	29.71¼	4.70	4.68¾	4.84
March	16.41	32.42	4.70	4.60	4.84
April	17.00	30.85	4.70	4.70⅝	4.84
May	16.80	29.25½	4.22	4.52½	4.84
June	16.31¼	30.00	3.90⅜	4.27½	4.84
July	16.31¼	32.76¼	4.03⅛	4.23¾	4.84
August	16.55	31.13	4.26½	4.17½	4.84
September	16.75	29.63	4.36¼	4.10	4.67⅜
October	16.73	28.46¼	4.37½	4.10	4.19
November	16.75	28.10	4.37½	4.20	4.19
December	16.87½	26.84⅜	4.37½	4.18¾	4.19

SUPPLEMENT TO THE IRON





FLUCTUATIONS IN THE PRICES OF COPPER, LEAD, TIN, SPELTER, AND TIN PLATE IN
FROM 1890 TO 1902.



TIN, SPELTER, AND TIN PLATE IN NEW YORK TO 1902.

1901.

	Copper.	Tin.	Lead.	Spelter.	Tin plate.
January	16.90	26.60	4.37½	4.08	4.19
February	16.96⅞	26.55	4.37½	3.93¾	4.19
March	17.00	25.95	4.37½	3.89⅜	4.19
April	17.00	25.93¾	4.37½	3.94⅜	4.19
May	17.00	26.82½	4.37½	3.97	4.19
June	17.00	28.22½	4.37½	3.95	4.19
July	16.96⅞	27.40⅝	4.37½	3.90	4.19
August	16.50	26.90	4.37½	3.92½	4.19
September	16.50	25.03¾	4.37½	4.02½	4.19
October	16.71	24.62	4.37½	4.20½	4.19
November	16.82½	27.47½	4.37½	4.31⅞	4.19
December	14.71	24.38¾	4.18¾	4.35	4.19

Lake Superior Mining Interests.

Copper Mining Matters.

DULUTH, MINN., February 8, 1902.—There has been no change as yet in the situation throughout the copper country as the result of the different prices secured for lake copper. There is talk of a reduction of wages, and it may come, but mining managers will have to be pretty well assured of a permanence of present price before they will take any definite steps toward wage reductions. There is a decided change in the feeling from three weeks or a month ago, and a price for lake of from 14 to 14½ cents is now regarded as about the proper thing. There will be but slight change in the production of operating mines at this price, but the bulk of exploratory operations in the lake district will be, in fact is now, stopped short. So far as the Lake Superior region is concerned, it is safe enough to say that no new mines will be opened at a price for copper such as now seems probable for some time to come.

The lake men who are investing heavily in copper in the far southwest are enlarging their operations at Bisbee, Ariz. These men are largely officials of the mining end of the United States Steel in this district, officials of the Carnegie Company at Pittsburgh and of the Calumet & Hecla at Calumet. Some time ago they formed the Calumet & Arizona Copper Company, and are now opening a most promising mine at Bisbee. They have since taken over a number of additional claims in the same district, and, according to the Arizona mining papers, are on record with an offer of $1,000,000 for a third group of claims. For the original property, Calumet & Arizona, they are erecting a 500-ton smelter at the new town of Douglas, which is being established by the Copper Queen Mining Company, and will be in position to supply it steadily with rock running 7 to 8 per cent. and better when it is ready for operations. Their mine is opening a vast tonnage of rich copper rock with the main shaft down to 1125 feet. A large hoist is being installed and the shaft is being made three compartment. In the 950-foot level an ore body has been opened into that shows, with present development, 100 feet long, 70 feet wide and more than 200 feet high, with its full dimensions undetermined.

Among lake copper mines the new south range group, the mines on the southerly extension of the Keewenaw, southwest of the Atlantic, are making a fine showing. The Trimountain especially is said to be making a very large amount of copper per ton of rock stamped.

The Ontonagon mines, Mass and Adventure, are making a showing that seems to insure a good future. The Mass is still making a large amount of mass and barrel copper in the rock, and its silver product is important. On account of this silver the mineral is all going to smelters at Chicago, and none is being treated at the lake. It is possible that Quincy will erect a smelter that will take care of this rock.

The Bigelow-Lewisohn interests will erect a smelter for sulphide ores east of Sault Ste. Marie, under a contract with the Rock Lake Copper Company, now opening a mine on the Canadian side of the Sault River. Other new properties will also send their product, if any, to this smelter.

Copper is being shipped East as fast as made by the two large lake smelters at Torch Lake and Dollar Bay, and there is very little surplus on hand at the lake. Montana electrodes are coming to Dollar Bay for refining.

Improving Iron Ore Shipping Facilities.

Among the iron ore shippers an increase of activity in preparation for large outputs the coming season is notable just now, this increase being where the chain was weakest. There will be a number of additional unloading machines on Lake Erie docks, and considerable enlargements to docks themselves. At Escanaba the Chicago, Milwaukee & St. Paul road are adding dock capacity to double their shipments of last year. At Superior the Eastern Railway of Minnesota, whose marvelous expansion in ore traffic was noted last week at some length, are to increase their ore dock capacity by the addition of 100 pockets of 200 tons capacity each at a cost of about $250,000, and are to have 1000 additional 50-ton steel cars, as well as additional locomotives. At Two Harbors the Duluth & Iron Range Road are to have a new dock at a cost of $175,000, and at Duluth the Duluth, Missabe & Northern are improving facilities by extensive replacement of wood bridges, regrading and improved alignment. At Ashland both the Northwestern and Wisconsin Central roads will make extensive repairs to docks and equipment and the indications are that each will break last season's records.

The Iron Mines.

On the Gogebic range all mines are working heavily in preparation for a large output. Stock piles are increasing rapidly and officials of mines there, in common with the rest of the upper lake region, are looking for the banner year. At the Ashland Mine the Cleveland Cliffs Company are sinking their new shaft in the foot wall and are now down 300 feet. The mine is being developed satisfactorily.

On the Mesaba range a sale of the Kinney-Hawkins property, negotiations for which were reported in this paper some weeks ago, has been closed, the price for the lease being $520,000. It is currently reported here that the McCormick Harvester Works are the buyers. Picklands, Mather & Co. have made examinations of the Day tract, near Hibbing, which they have had under option at $125,000. It is evident that this concern, or some associated interest, are becoming anxious for more ores on the Mesaba, for exploratory operations of importance will be undertaken at once. Outfits have been purchased and plans matured for looking for ores along the range. It is reported in Mesaba range papers that the Clergue interests are looking for ores there, but this is probably due to the presence on the range a week or two ago of E. F. Bradt, superintendent of mines for the Algoma Commercial Company. It is not probable that Mr. Bradt made purchases of lands or properties. Furnace interests are said to be negotiating for 120 acres close to Hibbing that has been explored by Longyear, Hartley & Congdon. Negotiations are under way for the purchase by an Eastern interest of a State lease in section 12, T 57 R 21, where a large body of ore has been shown up the past season.

On the Menominee range the important matter now is the action of the Milwaukee road in securing the haul of Great Western mine's ore, to which mine it is now building a track. When the Milwaukee entered the range, a year ago, this correspondence predicted that there would be war between the old established Chicago & Northwestern interests and the newcomer, and this war appears to be now on. The taking of Great Western ore by the Milwaukee is the first inroad it has made among the established mines of the Crystal Falls district. The Great Western mine should produce 300,000 tons a year, half as much as the Milwaukee road hauled out of the Menominee range last year. The Pewabic Mining Company are exploring near Atkinson. They have unwatered the old shaft and are drifting in the bottom. The formation is promising, but nothing has been found.

The Union Steel Company are unwatering the Volunteer mine, Marquette range, and have taken the Platt, near by. The Volunteer has very large openings and it is taking a long time to get the water out. The Platt will soon be ready to enter. A new shaft will be sunk on the Princeton, which is becoming an important mine for that district.

D. E. W.

Notes from Great Britain.

An Important Judgment.

The Barrow Hematite Steel Company have been in the throes of litigation for some months past, with the result that one of the most important legal judgments concerning the rights of English preference shareholders has been given. I may state, perhaps, that the company were incorporated in 1864 with a capital of £150,000. Since that period, from time to time, the capital has been increased, and now stands at £1,528,275, divided into 150,000 ordinary shares of £7 10s. each, 377 8 per cent. preference shares of £75 each, and 50,000 6 per cent. preference shares of £7 10s. each. The plaintiffs in the case in question were holders of the 8 and 6 per cent. preference shares. They claimed that they were entitled to be paid their dividends out of the profits made by the company, but the directors of the company contended that the articles of association gave them power to declare a dividend with the sanction of the general meeting, that no such sanction had been given, and that they could carry the profit to a reserve fund in their discretion. During the years 1898, 1899 and 1900 the profit and loss account showed a balance described as net profit for the year 1898 of £65,803; for 1899 of £89,018 and for 1900 of £157,605. During these three years considerable sums of money were carried by the directors to the reserve account, so that altogether at the present time the sum of about £240,000 is held in reserve and the preference shareholders have not been paid. The real contention of the company has been that, although the figures showed what they term a "net profit," yet in reality the capital value of the concern has shrunk by about this value, and that they are entitled, therefore, to put their profits into reserve to counterbalance the depreciation in the market value of their stock. The judge remarked that it had been proved to his satisfaction that the company had sustained an actual ascertained and realized loss of capital to an amount exceeding £200,000, and had also lost capital by estimate and valuation to an amount exceeding £50,000. I venture to quote on this point the ruling of the judge. He says: "If, therefore, these ascertained and estimated losses have to be made good before any dividend can properly be paid, there are obviously no funds out of which to pay dividends. The defendants allege, and the plaintiffs deny, that the company are bound to make good these losses before paying dividends. The question is one of very considerable difficulty on the authorities; but the result of those authorities is, in my opinion, that there is no hard and fast rule by which the court can determine what is capital and what is profit. It is, however, necessary to bear in mind that the two propositions —that dividends must not be paid out of capital; and, second, that dividends may only be paid out of profits—are not identical, but diverse. The first is the requirement of the statutes, and cannot be dispensed with. The latter is in Table A, or the articles of the particular company, and is one of the regulations of the company which has to be construed. A company which has a balance to the credit of its profit and loss account is not bound at once to apply that sum in making good an estimated deficiency in the value of its capital assets. It may carry it to a suspense account or to reserve, and if the assets subsequently increase in value the amount neither has been, nor will be, part of the capital. If, therefore, a part of such balance be used in paying dividend, such dividend is not paid out of capital, because the sum has never become capital, although it still remains a question whether it has been paid out of profits or not." It will be obvious from the foregoing that everything depends on a right definition of actual profit. Professor Marshall defines it as "the excess of the receipts from the business during the year over the outlay for the business, the difference between the value of the stock and plant at the end and at the beginning of the year being taken as part of the receipts or as part of the outlay, according as there has been an increase or decrease of value." The judge does not accept this definition *in toto*, because the term "stock and plant" includes both fixed and circulating capital, and it remains a question how far profits are to go toward the maintenance of fixed, in contradistinction to circulating, capital. The judge on this point said: "All the authorities, however, agree that circulating capital must be kept up. In the present case the £200,000 realized loss arises from the surrender of the leases for certain mines, the pulling down of certain furnaces and the sale of certain cottages. The company are a smelting company on a very large scale, and for the convenience of their works and by way of economy they acquired the leases of the surrendered mines, in order to supply themselves with their own ore instead of buying it as required. The ore was used extensively for the purposes of the company's works. The mines were drained out, and the company surrendered the leases, pulled down the blast furnaces, and sold the cottages connected therewith. The evidence before me is all on one side. The plaintiffs called none. . . . Suppose the company had bought enormous stocks of ore sufficient to last for ten years, it could hardly be said that the true value of so much of this as remained from time to time ought not to be brought into the balance sheet, and I can see no difference in principle for the purposes of the account between ore *in situ* and ore bought in advance. The blast furnaces and cottages were accessories to the ore, and resemble a building for housing stores bought in advance, as already mentioned." Judgment was accordingly given for the company as against the preference shareholders, so that it is now made clear that in estimating profit and loss in the future, due regard must be paid to the maintenance of both fixed and circulating capital, and that preference shareholders can only be considered in the actual distribution of dividends paid *pari passu*, as between themselves and the ordinary shareholders. It is not wonderful, under these circumstances, that an appeal to the House of Lords will probably take place, although the general feeling is that the judge has accurately interpreted the law upon the question.

Another Combine.

The directors of Vickers, Sons & Maxim now announce that a provisional agreement has been made to acquire half of the ordinary shares in William Beardmore & Co., carried on by William Beardmore, at Parkhead Forge, Glasgow; Napier Yard, Govan and Dalmuir Shipyard, Dumbarton. William Beardmore & Co. have recently come to the fore very quickly in the manufacture of armor plates, railway material, ship plates and forgings, and also as builders of vessels for war and commercial purposes. The business of William Beardmore & Co. shows an average profit during the five and one-half years ended June 30, 1901, of $700,000 per annum, while in the year 1900 the profits exceeded $1,000,000, a figure which it is confidently predicted will at least be equaled by the results of 1901. William Beardmore receives 362,500 ordinary Vickers shares, in consideration of parting with half his interest in his own company. To carry out the arrangement, the firm of William Beardmore & Co. are to be registered under the Limited Liability acts, with an ordinary share capital of $7,500,000, the issue of preference shares to be made when further capital is required. Vickers, Sons & Maxim will be represented on the Beardmore Board by Albert Vickers and Lieutenant A. T. Dawson, while William Beardmore is himself appointed a director on the board of Vickers, Sons & Maxim. At the next meeting of the Vickers shareholders a resolution will be submitted to increase the capital of the company to $11,000,000 by the creation of $2,000,000 new ordinary shares of £1 each for this purpose.

New Lead Mills in South Wales.

Vivian & Sons, the well-known copper and lead firm of Swansea, South Wales, are laying down costly plant at their White Rock Works for sheet lead rolling. The contract is being carried out by John Wilson & Sons of Johnstone, Scotland. Hydraulic plant for the manufacture of solid block tin and block tin composition tubes has also been put down.

Changes in Tonnage

The mention of shipping reminds me of an interesting lecture just given to the Royal Statistical Society

by Sir John Glover. The most important point made by him was that the total number of ships in the world grows less as the size increases. Our list is shorter than it has been during the past half century, but our carrying power has increased enormously—24,000,000 tons in 1900 as against 18,000,000 in 1890. While in 1890 there were 32,298 British ships of 100 tons and over, there were only 28,422 in 1900. But the total tonnage had increased from 17,500,000 to 20,500,000. The United Kingdom and the colonies owned 12,071 of those ships, of 8,500,000 tons, in 1890, and 10,838, of 9,500,000, in 1900, or nearly half the world's total. In 1890 60.5 of our ships were steamers; in the course of ten years the proportion rose to 77.9, which was considerably above the world's average.

The Bertrand Process in the Midlands.

The Earl of Dudley has decided to spend immediately $150,000 in adopting the Bertrand process at the Round Oak Works, Brierley Hill. Great interest is taken in this decision. Earl Dudley's advisors are sanguine of great success.

New Steel Amalgamation.

The most notable news of the week is the amalgamation of Guest, Keen & Co. with Nettlefolds. Guest, Keen & Co. were formed in July, 1900, by the union of the Patent Nut & Bolt Company with the Dowlais Iron Company and Guest & Co., the capital being £3,000,000. In December, 1901, Crawshay Bros.' steel works and collieries, at Merthyr, were purchased, and now Nettlefolds, with screw and wire works at Birmingham, Pontypool and Newport, are being bought on terms which work out at about £2,000,000. It is well known that the moving spirit, Arthur Keen, who recently made a tour of inspection in the States, has been much impressed with the efficiency of American methods, and this amalgamation is regarded as the first step in a big movement for the defense of the British iron and steel trade.

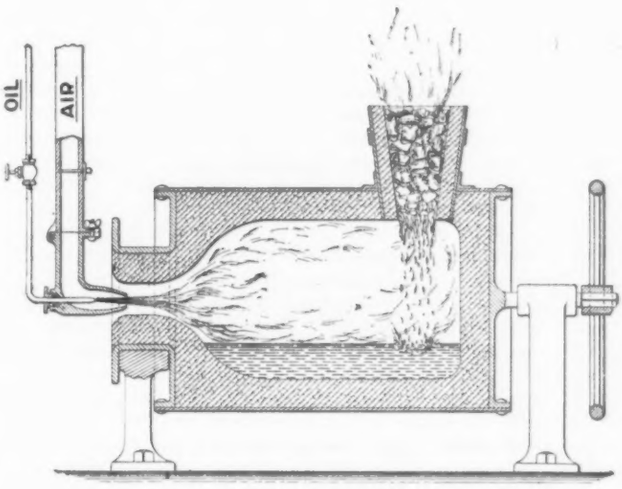
S. G. H.

Disastrous Fire at Springfield, Ohio.

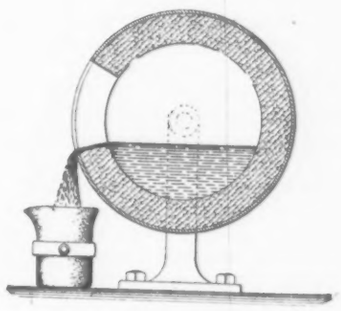
The most destructive fire in the history of Springfield, Ohio, was discovered in the Champion Chemical plant of the East street shops, February 10, and in an hour and a half 12 manufacturing plants were in total ruins. The loss is estimated at $500,000. Among the heaviest losers are the Owen Machine Tool Company, Champion Chemical Company, Springfield Foundry Company, Progress Stove & Furnace Company, Indianapolis Frog & Switch Company, Miller Gas Engine Company, Green Mfg. Company and Krell French Piano Company. The machinery, material and unfinished product of all the occupants of the shops are a total loss, the insurance on which approximates $300,000. The shops were 800 x 1200 feet, and were built in 1882 by William Whitely for the manufacture of harvesting machinery, at a cost of $750,000. The equipment of the plant cost about $2,000,000, but after the failure of Mr. Whitely, a few years later, they were left idle for nearly ten years, when they were sold at a receiver's sale, and Senator Fairbanks and several other capitalists bought them for $200,000.

The Charlier Rolling Oil Melting Brass Furnace.

The brass melting furnace designed by H. J. J. Charlier and now being placed on the market by J. W. Paxson Company of Philadelphia uses oil as fuel. It consists of a cylindrical iron casing, lined with fire brick and set upon axial trunnions, and is provided with a suitable hand wheel, so that it can be rolled over to any desired point, bringing the molten metal in contact with the hot sides of the fire brick lining and also agitating or stirring the molten mass so that the whole body of the melt may be of an even high temperature.



Melting Position.



Pouring Position.

THE CHARLIER ROLLING OIL MELTING BRASS FURNACE.

The oil is sprayed into the furnace through an opening at one end by means of a small fan blower, no compressed air plant being required. The oil is pumped by hand from a tank outside the foundry to a reservoir of about 10 gallons capacity, sufficiently elevated to give an even flow of oil to the burner. With fuel oil at 4 cents per gallon, we are advised that the cost of melting is about 16 cents per hour, while natural gas can be used even to a better advantage. A feeding hopper is placed on the top of the furnace, which can be removed at will. After the furnace has been heated about one-half the charge is dropped into it; the other half, particularly the larger pieces of pig and scrap, is charged in the hopper, which is refilled as the charge in it melts down, economizing materially in the fuel consumption, as that portion of the work is practically accomplished with the waste heat. The pouring is done by rolling the furnace to such a degree that the metal will run from the same opening which was occupied by the hopper.

The melting capacity of the furnace is as follows: Six hundred pounds copper and tin, one hour; 600 pounds turnings, two hours; 500 pounds new metal, 75 turnings, one hour; 600 pounds yellow brass, one hour, and the loss by oxidation is no greater than when crucibles are used. Thus far only one size furnace, of 600 pounds capacity per heat, has been built, and nine heats have been run off in one day. Any capacity furnace up to 4000 pounds can be furnished. A testing plant has been established in Philadelphia, where the furnace can be examined in operation.

Labor in America.

From the Standpoint of an English Unionist.

BY STUART UTTLEY, SHEFFIELD.

According to some authorities the workingmen's paradise is Australia. I am doubtful. Of one thing I am certain and that is that it is not in the old country, and from what I saw in the States I have serious questionings as to its locale being there.

Labor at High Pressure.

Certainly the chance of laying hold of a few more of the almighty dollars appears to be within the reach of the ordinary workman in America better than in England, but in visiting a large number of the workshops the question came home to me with considerable force: What is the price these men are paying for this very temporary advantage? Is the game worth the candle, and will it pay in the end? This was emphasized when I noticed the jaded appearance of a large number of comparatively young men and the almost entire absence of old men, or even those of advanced middle life. (This specially applies to the foundries and some other sections of the iron trades). Now this to me was a startling commentary on the effect of long hours and high pressure under which the American workingmen labor under the piece work system, and my inquiries were sufficiently comprehensive to warrant me in concluding that in several of the most important branches of industry the workmen labor at such a forced pace that large numbers of them broke down before they reached middle life. It is all very well to be able to lift a few more dollars weekly for a few years, or for employers to get the very utmost out of their machines, both mechanical and human, but what about the shattered health of the breadwinner, who in early life finds himself stranded with all the responsibilities of a young family upon his shoulders, and what of the prospective burden which is bound to fall eventually upon those who at the present time are making the pace which kills and will eventually entail an intolerable burden upon the nation?

Trade Unions Weak in United States.

As one who has been closely associated with the labor movement for many years, and in view of the fact that organization is one of the strong points of the Anglo Saxon character, I naturally expected to find trades unionism a living active force in the United States. That, however, is not the case. There are, of course, trades unions, but in the main they do not exert a tithe of the influence such organizations exert in Great Britain. I can perhaps best illustrate my meaning by what I saw and heard. On Labor Day I witnessed an imposing turn out with bands and banners with resultant sports and general jollifications. Being under the impression that American workmen were in earnest in the matter of organization I naturally turned with considerable interest to the "Labor Day Review," published by the Detroit Council of Trades and Labor Unions, expecting to find some astonishing facts and figures as to the strength of trades unionism in that enterprising city of 325,000 people. Judge of my surprise to find that of the 32 unions commented upon in the said review 18 totaled 5972 members, and that the strongest union associated was the iron molders, with membership in the two branches of 1275. The street railway employees followed with 1047, and the machinists came next with 750 members. Thus these three united made up above one-half of the membership of the 18 unions for which figures were given. The bricklayers' and masons' union only totaled 285, tailers' 200, carpenters' 400, electrical workers' 200 and so on. No numbers were given in the case of 14 of the unions, but as the iron molders boast that they are the strongest union in the city it is certainly well within the mark to say that the trades unionists of Detroit do not exceed 10,000 members. Now I have no hesitation in saying that a similar industrial city in Great Britain would have from 30,000 to 40,000 members enrolled in its local branches. But Detroit is really an exception. It is regarded as one of the best organized cities of the States. Matters are worse in New York, Cleveland, Philadelphia and elsewhere, where the unions play a very minor part. No doubt the continuous influx of the foreign element is a serious obstacle in the way of organization, but I venture to think that one of the chief causes is that the American workmen have never yet fully realized the necessity and advantage of good, sound organization. Of course this is chiefly owing to the fact that America is a new country, and has up to the present, under a highly protected system, been busily engaged in developing her home trade, but the period is rapidly approaching when even American workmen will view matters from a very different standpoint.

American and British Trade Unions.

It may not be out of place here to indicate the difference between American and British trade unions. Even the best organized American workmen do not appear to have realized the importance of making provision for contingencies. The British trades unionist will steadily pay into his union his 25 cents or more per week for years without expecting an immediate return. In course of time, however, he and his mates think the time has arrived for an advance of wages or a reduction of hours or an improvement in the conditions of labor. A poll is taken and if a majority of the members approve then the leading officials approach the associated employers and the matters are amicably discussed. It may, however, happen that the differences cannot be adjusted and a lockout or strike be decided upon. If the men come out there is no attempt to force the hands of the employers by unlawful and riotous action and the fight really resolves itself into a question of endurance. The workman receives his $3 or $4 per week for months it may be, or while ever the dispute continues. The managers of the dispute on the part of the men take energetic steps to persuade all possible nonunionists whom the employers may bring in to abstain from replacing the strikers. Some of the British unions have vast accumulated funds, and this fact has naturally considerable influence in the negotiating and in the settling of difficulties. The result is that many a strike is averted by the knowledge of the financial position of the union.

It is, however, at this point where the American workman fails. He continues working at high pressure his ten hours a day, and if he does belong to a trades union he pays the smallest possible subscription, just sufficient to cover working expenses. When an attempt is made to take undue advantage of him and he is compelled to resist it he has no funds to fall back upon and is consequently unable to make any prolonged stand. He becomes desperate, and seeing certain defeat staring him in the face is apt to take the law into his own hands. I had the opportunity of talking these matters over with one of the most experienced and alert labor leaders in America, and he informed me that although it was admitted that the Amalgamated Society of Engineers was the most substantial and best managed union in the country, yet it did not make the progress the friends of labor desired, and it was exceedingly weak compared with the parent organization in England. In fact there are quite a few cities in the States where there is not a branch of this society. The principal reason why it does not make greater headway is due to the fact that American born workmen will not join it, because its headquarters is in England.

Piece Work and Trade Unionism.

It goes without saying that in many instances piece work tells against trade unionism, especially where we find a variety of nationalities, many of them poor and not understanding each other's language. Although in Great Britain there are many strong and prosperous unions where the whole of the men work by piece, yet in America the effect of piece work has been to create and foster a feeling of every man for himself and "the devil take the hindmost." In Great Britain the efforts of combined labor has been directed to reducing the hours of work, the conclusion being naturally drawn that advances would follow as a matter of course. By their efforts the working day was reduced to ten hours, afterward to nine, and in some of the best managed forms the eight-hour day is in operation.

I noticed that in many cities that I visited quite a

number of skilled trades were working 60 hours per week, whereas their brethren in the old country work 48, 52 or 54, as the case may be. I am bound to admit that in many trades the men are anxious to work long hours in consequence of their ability thereby to obtain a larger amount of money. I found several striking instances of this. One gentleman occupying a prominent position in a large firm of agricultural implement makers told me that his firm, being impressed with the fact that the men in their employ were suffering from the effect of the ten hours work per day, reduced the hours of work to nine per day. In a very short time, however, the workmen petitioned the firm to again place them under the ten-hour system, the reason assigned being that they could earn more money under the long day.

Public Opinion.

There is also a very marked difference between America and Great Britain in the matter of public opinion. In the latter country trades unionists have to conquer the prejudice and hostility with which people formerly regarded them. It is true that the reactionary press occasionally commences a crusade against them, and discarded and discredited leaders will commence rival organizations, but the unions in Great Britain have long since proved clearly the invaluable part they play in the best interests of the community, first by encouraging and training highly skilled labor, and, second, by encouraging thrift among workmen whereby in seasons of trade depression thousands of families are prevented from having to fall upon the public rates. Coupled with this is the fact that the period when the trades unions have been the most powerful has been the time when the trade of the country has been most prosperous. It is all very well for anonymous writers in the London *Times* to seek by *ex parte* statements to damage trade combinations in the eyes of the public (from a capitalist standpoint), but when such facts as the following are known to exist in a city where the unions are singled out for attack the writer is at once stamped as either writing in absolute ignorance of the facts, or willfully seeking to injure or destroy the trades unions. In certain branches of the cutlery trades in Sheffield, England, the unions in one section are charged with opposing a machine for the making of springs, and a comparative statement is made as to the quantity of work which a workman can produce by hand labor *per diem*. Now the fact is that the machine in question has been at work for a good many years, the workmen have never in any way opposed it, and so far as the quantity of work which can be done by the workmen it is more than double of what is stated in the article. The trade union is also charged with reducing the number of apprentices. The fact is that there had not been for some years any union at all in this particular branch, the result being that the employers had so reduced the wages that it was absolutely impossible for a skilled workman when fully employed to earn above $5 a week, and this after he had served a seven years' apprenticeship to the trade. The outcome of this was that boys could not be induced to enter the trade, and if they did, on attaining to the age of 16 or 17 years they gave up the cutlery business and went into the iron, steel or cycle works. The cry to-day is for highly skilled workmen in these branches of industry, and the attempt is made to charge the blame upon trades unions, when the fact is that owing to the lack of union the men have been so reduced in wages as to make these trades, the most highly skilled in the world, not worth following. Formerly when trade was slack manufacturers in the old country would assist workmen to tide over a period of depression by stocking goods, but now they won't stock. I know of one firm at least who are regretting most keenly this short-sighted policy, as in spite of the high and almost prohibitive tariff they could have disposed of double the quantity of goods could they have found the skilled workmen to produce them. What of the charges so recklessly made? They may serve to increase the circulation of the journal publishing them and pander to the prejudice of a certain class who neither toil nor spin, but they certainly do not convert the mass of the people into believing that such organizations are in the words of the old Cromwellian resolution anent the House of Lord, "Useless and dangerous and ought to be abolished." When any big strike occurs public opinion holds the balance very fairly; indeed, if it shows any leaning at all it is toward the men, on the whole.

Confidence in Leaders.

Organized labor is highly respected in England. Its leaders sit in the House of Commons and on most public bodies, and are honored on those bodies with the confidence of their followers, being placed in the most important positions. From what I saw in the States there appears to be, rightly or wrongly, a considerable lack of confidence in the leaders, and workmen instead of helping to build up their union are ready to weaken and destroy it. I also found that when disputes arise and strikes are entered upon both press and the public are down upon the strikers. Of course all this reacts upon the latter, weakens their self respect and tends to promote acts of violence. In drawing this comparison, however, it is only fair to point out that the rapid expansion of American trade, the development of the trust system, the constant influx of foreigners and the application of the tariff have all militated against that stability which is one of the most favorable conditions for trades unions. It is well also to bear in mind that labor organization has grown with developing trade, and that it has taken nearly three-quarters of a century to bring the unions to their present state of organization. In the early days when the law regarded them as illegal and their members were imprisoned and when public opinion was decidedly hostile to them outrages were more frequent, strikes more numerous, savage and costly. It may be well for thoughtful Americans to bear this in mind and realize that one of the best safeguards for the commonwealth is a well organized and contented working class.

Although the American workingman works longer hours than the British workman, he gets better wages and is able to save more (if so disposed). He can also buy land, or house, or both, cheaper; the consequence being that it is possible for a skilled artisan to own his house and lay by a decent sum for a rainy day; in other words, he has to depend upon himself. On the other hand the Englishman can make provision by means of his union for old age in the superannuation fund, and this in the case of the best organizations amounts to $2 or $2.50 per week. That amount is supplemented by his sick club grant, coupled with what he may have been able to save in addition. He has therefore a feeling of independence of that bugbear to all workmen, the workhouse.

Socialism.

Although I made close inquiry I found little or no sympathy with socialism, nor was this at all surprising. The strong individuality of the American workman shows little inclination for socialist ideas. Indeed, paradoxical as it may seem, municipalization has made much less headway in republican America than it has in monarchical England. There are, of course, socialists in the States, but they are seldom found among the native born, and though the Germans, French and Italians frequently show a strong leaning in that direction it always leaves them after a few years' residence. But it may be asked, if neither trades unionism nor socialism is making headway in the States what is the immediate outlook of the American workingman? Will he be contented to be crushed by trusts? Will he quietly sit down and allow his wages to be reduced and his necessities of life increased in price, without a struggle? I think not. One thing is certain. He will have nothing to do with anarchy, although this strangely violent disease is finding increasing favor among a certain class of foreigners in the new world. I venture to predict that in the not far distant future the American workman will use his electoral power to an extent little dreamed of now. He will organize, but it will be politically, and when he finds that trusts and combinations are threatening his personal interests and the true progress and prosperity of the commonwealth he will insist on the passing of such laws as will save the nation.

The Apprentice Question.

Before bringing this article to a close there is one phase of the American labor question to which my atten-

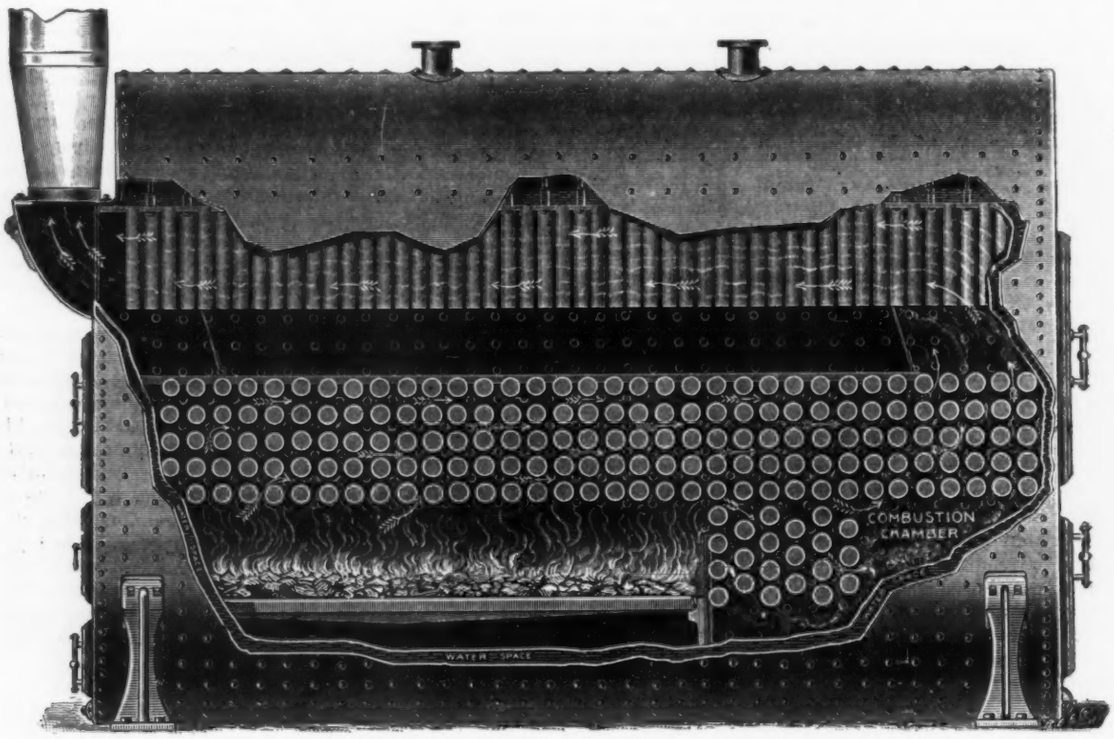
tion was directed—viz., the apprentice question. To a cursory observer this may appear to be a very minor matter, especially in a country where so much reliance is placed upon the subdivision of labor and labor saving appliances. I venture to assert that the neglect of this is calculated to have a very serious effect upon trade. Close attention to this has been one of the most important factors in building up the reputation of Great Britain for good sound work. Such a contention may appear old fashioned and out of date, but from an experience of many years I am convinced that the reason why British manufactured goods in the matter of excellency and durability stand so high is that care was bestowed upon the workmen of the present generation during their apprenticeship. It was to me a remarkable fact to find that in a large number of the American factories and workshops, both in the iron, steel and textile industries, the great majority of the best workmen were from the old country, where they had received their training under trade union regulations, where they are compelled to pass five, six or seven years' training, and are compelled to pass through every grade, and been impressed with the necessity of doing each part thoroughly well. Under those circumstances the probabilities are that youths trained in this way will turn out good workmen. Possibly the American employer supposes that he will always be able to draw his supply from the old country, as it appeared to me has been the case for the past 30 years or more. That may be so, or not, but in any case it will have to be paid for, as the British workman, as a rule, is not disposed to give his skilled labors away, and I may be excused from saying without fear of contradiction that as a rule he is a first-class workman, and the product of his toil will stand every test.

The Pittsburgh organization of the International Union of Steam Engineers has arranged a new scale of wages to be submitted to employers for adoption by May 1. The present wage is 33 1-3 cents an hour on a nine-hour day basis, and the proposed new scale calls for 50 cents on an eight-hour day basis.

The Rochester & Pittsburgh Coal & Iron Company, Punxsutawney, Pa., have let the contract for the erection of their new furnace at Du Bois, Pa., the construction of which is under the supervision of Julian Kennedy of Pittsburgh. The furnace will be 80 feet high, 19 feet at bosh, will be equipped with 2000 horse-power boilers, three blowing engines, four stoves and a modern cast house, and will be operated on foundry iron. The company have an unlimited supply of good furnace coke, which will be used in this furnace.

The Kingsley Boiler.

The Kingsley boiler is composed of a horizontal, oval shaped, double shell, both parts of which extend the full length of the boiler. Both the inner and outer shells are united by stay bolts, which are placed at equal distances and are perfectly straight, so as to insure uniform expansion and contraction of the parts. There is a water space between the inner and outer shells, the space from the grate bars to the crown sheet being of such size as to guarantee sufficient heat to purify the water before it reaches the crown sheet to supply the drop tubes. The water space between the bottom shells is large enough to permit of cleaning out, as this is where all the dirt and sediment collect. The space between the crown sheet and outer shell is such as to provide ample steam and ample depth of water on the crown sheet.



THE KINGSLEY BOILER.

Extending horizontally from each side of the inner shell are tubes having their inner ends closed; similar tubes depend from the crown sheet, and all the tubes open into the water space. In a 300 horse-power boiler there are 516 horizontal tubes and 475 drop tubes.

The position of the grate will be seen in the broken view, Fig. 1. There is a bridge wall at the rear end of the grate which forces the heat up and around the full length of the horizontal tubes to the back end of the boiler. At this point there is a combustion chamber from which the gases pass under the crown sheet and around the full length of the drop tubes, the whole length and width of the boiler to the smoke stack at the front. There is sufficient space under the horizontal tubes, and also between the top row of horizontal tubes and bottom of the boiler, to permit of the easy removal of any without disturbing those adjacent. There are large cleaning doors in the front and back ends extending the full width of the boiler, and from the ash pit to the crown sheet, and large hand holes in the bottom, front and back ends.

The boiler is a very rapid steamer, owing to the wa-

ter being in very small bodies and evenly distributed throughout. The drop tubes are so arranged that the gases must come into direct contact with every part of the heating surface. One of the most important features of the boiler is the entire absence of brick work. It is self contained in the truest sense. The most economical results are obtained as the entire combustion takes place in spaces completely surrounded by water.

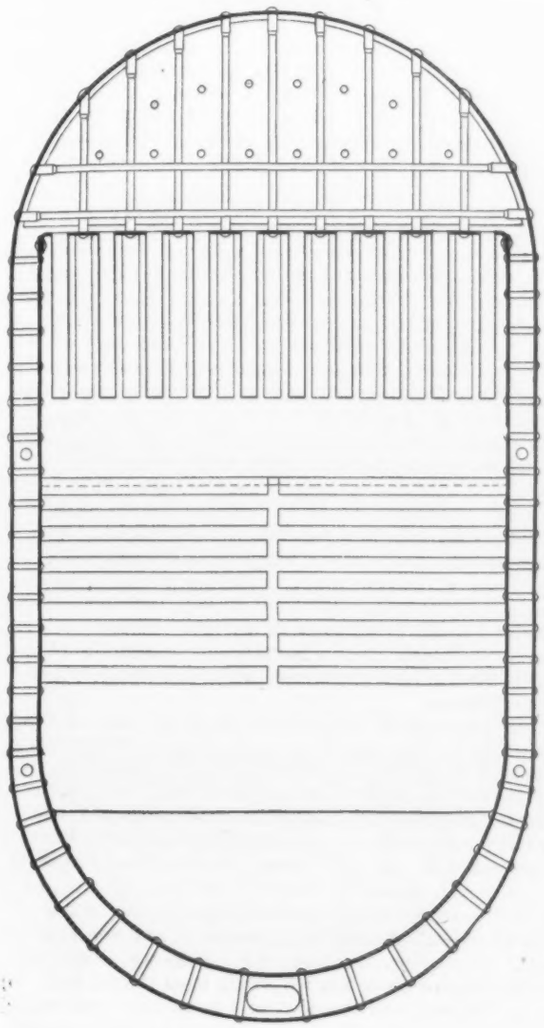


Fig. 2.—Cross Section.

THE KINGSLEY BOILER.

This boiler is built by the Kingsley Patent Boiler Company, 30 Broad street, New York.

Philadelphia Foundrymen's Association.

The regular one hundred and fifteenth meeting of the Foundrymen's Association of Philadelphia was held at the Manufacturers' Club, Broad and Walnut streets, Philadelphia, Wednesday evening, February 5. President Thomas I. Rankin occupied the chair and called the meeting to order at the usual hour. Among those present may be mentioned:

Thos. I. Rankin, Abram Cox Stove Company, Philadelphia.
Jas. S. Stirling, Harlan & Hollingsworth, Wilmington, Del.
Stanley G. Flagg, Jr., Stanley G. Flagg & Co., Philadelphia.
J. Thompson, J. Thompson & Co., Philadelphia.
W. H. Hunt, Wm. Adams & Co., Philadelphia.
A. G. Warren, J. W. Paxson Company, Philadelphia.
Mr. Cunningham, A. & P. Roberts Company, Philadelphia.
Geo. C. Davis, chemist, Philadelphia.
Jas. L. Keightley, Geo. V. Cresson Company, Philadelphia.
Al. Belfield, H. Belfield & Co., Philadelphia.
W. J. W. Moore, Pilling & Crane Company, Philadelphia.
R. C. Oliphant, Trenton Malleable Iron Company, Trenton, N. J.
Gus. Stahl, Girard Iron Works, Philadelphia.
Mr. Roberts, Bernstein Mfg. Company, Philadelphia.
J. J. McCrystal, Girard Iron Works, Philadelphia.
T. B. Harkins, T. B. Harkins Foundry Company, Bristol, Pa.
Oregon Ward, Howe Scale Company, Philadelphia.
F. A. Riehle, Riehle Bros., Philadelphia.
P. D. Wanner, Reading Foundry Company, Reading, Pa.
A. A. Miller, *The Iron Age*, Reading, Pa.
J. B. Rufe, United States Cast Iron Pipe Company, Lansdale, Pa.
S. C. Bunting, Haverford, Pa.
J. Hy. Pepper, *Iron Trade Review*, Philadelphia.
H. O. Evans, Thos. Devlin & Co., Philadelphia.
Wm. Hanson, Pennsylvania Iron Works Company, Philadelphia.
Wm. Hamilton, Harlan & Hollingsworth Company, Wilmington.
P. S. Brauscher, Philadelphia & Reading Shops, Reading, Pa.
H. Evans, J. W. Paxson Company, Philadelphia.
S. Groves, British Westinghouse Company, Manchester, England.

The reading of the minutes of the previous meeting was dispensed with in the usual manner. The Executive Committee reported that the necessary legal steps were being taken toward the incorporation of the association, and the treasurer reported a balance on hand amounting to $1563.30, with all indebtedness paid.

Under new business a letter was read from W. H. Pfahler regretting his inability to be present and to address the association on the subject of "The National Civic Federation."

A paper by J. B. Rufe, subject, "The Rufe Power Molding Machine for General Work," was presented and read by S. C. Bunting, Bryn Mawr, Pa. We shall publish it in our next issue.

In the course of discussion Mr. Rufe said that the present means of operating the machine was by rope power, but that screw or chain gear could be easily applied.

In reply to a question of the weight of the wheel he said that the total weight was 400 pounds, but that the amount of pressure exerted on the mold was governed by means of springs, as explained in his paper.

S. Groves stated that in his experience a steady pressure exerted on a sand mold does not give the best results; a good mold is best made by a sharp blow. In the Rufe machine the pressure exerted is all longitudinal and not transversely, and would not give best results, particularly at the point where the wheel first strikes the mold. The sand in such a case is pushed forward from the end of the mold.

In reply to this point Mr. Rufe said that the supplementary side bars acting as a resistance caused the sand to be equally rammed in all parts. In the matter of imperfect ramming at the beginning of the mold he said that provision to cover this had been made by introducing a sand trap at each end of the machine, which was held in position by a spiral spring and which the wheel rammed prior to the mold proper. The pattern, it was further explained, was rapped in the usual manner and the flask, or cope part, was lifted off, leaving the pattern on the plate; the molds in sewer pipe work being made all copes, and afterward joined together for the full mold.

Howard Evans then introduced S. Groves of the British Westinghouse Company, Manchester, England. Mr. Groves said that in 1894 he made his first public appearance in this country by reading a paper before the Philadelphia Foundrymen's Association on gear molding and gear molding machinery, and was very glad to be present at this meeting, although not expecting to make any address, as it was his last public appearance before going to Manchester, England, to take up his work in connection with the British Westinghouse Company's plant, the general construction of which and the equipment of its foundry plant Mr. Groves briefly described.

The meeting, after tendering a vote of thanks to both Mr. Groves and Mr. Rufe, adjourned, after which the usual luncheon was served.

An international exhibition of motor boats is to be held in Berlin in June, 1902. The headquarters of the committee, of which Oscar Constroem is secretary, is at Universitaets Strasse 1, Berlin, N. W.

In one day recently the basic open hearth plant of the Sharon Steel Company, at Sharon, Pa., made 925 tons of finished steel.

A Hearing on the Metric System.

WASHINGTON, D. C., February 11, 1902.—The House Committee on Coinage, Weights and Measures gave hearings on the 6th and 8th inst. on the pending bill providing for the adoption by the United States of the metric system of weights and measures to a number of prominent representatives of the electrical, iron and steel and textile industries, all but one of whom strongly advocated the passage of the measure. Among those heard were Prof. Elihu Thomson of the General Electric Company, W. H. McFarland of the Westinghouse Electric & Mfg. Company, James Christie of the Pencoyd Iron Works and American Bridge Company, Henry Troemner, a manufacturer of scales and scientific instruments; Dr. A. E. Kennelly, consulting electrical engineer; William Whitman, president of the Arlington Mills and ex-president of the National Wool Manufacturers' Association, and W. W. Crosby, principal of the Lowell Textile School. The hearing was held, as stated by Chairman Southard, for the purpose of taking the testimony of manufacturers and business men to supplement that heretofore given by scientists and Government officials.

The Electrical Industries.

Professor Thomson stated that he appeared as the representative of the General Electric Company, who were more more or less affiliated with other concerns such as the Westinghouse Electric & Mfg. Company, &c., employing in the aggregate at least 20,000 men, and he added that he did not come with a view of expressing his own private opinion simply, but to state the results of a consultation with the heads of department of the company which he represented. Personally, he was heartily in favor of the change.

He then presented to the committee brief extracts from a score of succinct statements prepared by the heads of the various departments of the General Electric Company, who generally speaking favored the change, although anticipating considerable expense and confusion. The head of one department estimated the cost to the General Electric Company at $200,000, which Professor Thomson said in his opinion was greatly exaggerated. The head of another department stated that the system would "greatly assist in calculating and designing and be a benefit after the transition period is passed." He did not think the metric system should be applied immediately to wire gauges. Another who favored the change stated that all computations and measurements would be immensely simplified and time saved by the decimal system. Another who approved of the change thought that great economy would eventually arise from it, but suggested that standard screw threads, taps, dies, &c., would not be changed at once. All new designs would be in the metric system, and old designs would remain unchanged until they became obsolete. Another head of department favoring the change thought it would be unwise to change the screw threads from the present standard, and called attention to the fact that British concerns build machines for Continental trade in the metric system with the exception of screw threads. Another regarded the metric system "as undoubtedly the best available and the one which must eventually be adopted." Although during the period of adaptation there would be considerable confusion, it would be greater the longer the change was postponed. He thought that thread gauges and wire gauges would have to be worked out, and he believed two or three years would be required for the change, provided manufacturers furnishing raw materials would co-operate. He thought the expense on account of new gauges, arbors, taps, dies, &c., would be quite large unless tools made according to the metric system were furnished gradually as the tools in use were worn out and discarded. Another head of department described his experience in Germany where he said the workmen used either the inch or the metric scale with equal facility. He believed the metric system preferable on account of its flexibility and the simple relations between the various units. He thought the system of screw threads should be left unchanged or altered with caution, and he expressed the opinion that the most serious question would be in regard to jigs, punching and drawing dies, all of which are expensive tools, and that such tools would have to be used until worn out. He thought that it would be necessary to have a general agreement on the part of the great manufacturing interests to adopt the system simultaneously. In reply to a question from the committee, Professor Thomson said that in his opinion the Government should adopt the metric system at once, and should give the manufacturers about two years to get their new gauges and in making plans for new work in the metric system. Whatever expense might be incurred by the manufacturers would undoubtedly be recouped in a short time as the result of the use of the much simpler system of calculation.

The Iron and Steel Industries.

Mr. Christie, who was the next witness, said: "I appear here as one long associated with iron and steel, and more especially with the manufacture of steel bridges in this country for the past few years. While speaking for myself, I would say I have taken the opportunity to have a conference with some of my colleagues of the American Bridge Company, especially those associated in the engineering department of the business, and I find they are all fully in accord with me in this matter. For a great many years I have been a strong advocate of the use of the metric system, and I think the expense and annoyance incident to the proposed change have been somewhat exaggerated. I do not think it is necessary to discuss the ease of computation in the metric system. For my own part, I never attempt to memorize any of our tables of measure, preferring to use a handbook, but in metric units. Although I only use them occasionally I find I carry them in my mind without having to refer to tables. It is a harmonious and philosophical system that is easily comprehended and easily retained in the memory.

"It is frequently urged that one of the great difficulties which would arise in our large manufacturing establishments would be over having to change the tools. My idea is that the expense would not be very great, for if I were to introduce the system in my own shop, I would not change the tools at once, but I would simply take the tools as they are and give them a nominal designation in metric units. A tool of 1 inch I would call 25 mm., and so on with the multiples and subdivisions, and when the tools wore out I would have the new ones made to even metric dimensions. Probably for a time we would have two systems of tools, but we would keep the old tools in one department, and the new tools in another, and in the course of a very short time the old ones would disappear. This would not create much confusion. The importance of screw threads I do not think is one of any consequence whatever. The present system is an entirely arbitrary one, and it makes no difference whether we change it or not. There has been an attempt to introduce the metric thread into Europe, but it has not been successful simply for the reason that they never felt they wanted it, and furthermore, while we have a standard screw thread in this country which is almost universally adopted, abroad they have half a dozen different standards. If in the course of time there is an object in changing screw threads and bringing them to the metric system that can be done.

"I regret very much that my friend, Mr. Vauclain, of the Baldwin Locomotive Works is not here. I have conversed with him very fully on the subject, and his is a concern which uses a large number of tools, and he agrees with me fully on this matter. If he were here he would say for himself that the result of the adoption of the system would be simply the use of old and new tools side by side for a short time until the old ones were worn out. I assume it is not the purpose of this bill to compel manufacturers to use the metric system, but simply to make it the only legal system. I suppose the Government would begin with it at once. In many departments it has already been in use. There are places where a little time might be needed, especially in a navy yard, but it would really take very little time for workmen to adopt the metric system and they would do it with great ease. I know of a shop in Philadelphia which received an order for the manufacture of some machines

on French drawings figured in the metric system, and rather than change the drawings and work over the scales, they simply put metric scales in the hands of the workmen, and the superintendent of the shop assured me it was done with ease."

Mr. Troemner spoke of the expense incident to the modification of scales that would follow the proposed change, and said it would be very slight, as it would only be necessary to provide new weights or recut scale beams. Five hundred dollars probably might cover this expense in the largest manufacturing plants in the country, while $5 would cover the cost of making the change in the average retail store. Mr. Troemner added that he had recently talked with the Commissioner of Mines of Mexico, where the metric system was adopted two years ago, and he said that the system was easily adopted and worked very harmoniously. An enormous number of scales were now being manufactured on the metric system in the United States for the export trade and shipped to Mexico, South America, China and to a limited extent to Europe.

Dr. Kennelly, who addressed the committee briefly, indorsed the statement made by Professor Thomson, and urged that an enormous saving would be made in the time devoted to the education of the average child. He also gave some illustrations of the ease with which engineering computations are made in the metric system as compared with the English system. Mr. Whitman spoke of the value of the metric system from the educational standpoint, and advocated its adoption as a labor saving device essential to the commercial and scientific progress of the country.

Mr. Crosby emphasized Mr. Whitman's statements, and gave a number of illustrations showing the advantages that would be derived by the textile manufacturing industry from the adoption of the system, which would do away with the present complicated methods of numbering yards of cotton, wool, silk, jute, ramie, &c.

The only witness opposing the adoption of the metric system was W. H. McFarland of the Westinghouse Electric & Mfg. Company, who dwelt at some length upon the cost of the change. He thought it would be very difficult to maintain the two standards side by side during the transition period, and that the change would have to be made at one stroke. Stocks of goods would become antiquated, and considerable confusion would follow. As to the metric system itself Mr. McFarland was of the opinion that the chief argument against it was the fact that the meter was not evenly divisible by two. If the meter was 40 inches it could be halved and quartered conveniently, and the natural rule of divisibility preserved.

The committee will probably continue the hearings for several weeks, but will report the bill with a favorable recommendation before March 1. W. L. C.

The Shaw Compression Shaft Coupling.

The latest compression clutch shell couplings being introduced by Patterson, Gottfried & Hunter, 150 Centre street, New York, are so constructed that they can be assembled in but one way. The single compression coupling, Fig. 1, consists of the sleeve 2, and the clutch members 1 and 3, the whole being united by bolts. The double compression coupling, Fig. 2, is composed of the five parts shown. The sleeves are tapered in both directions and partially parted, and when the shells or flanges are brought together by the bolts an absolutely rigid joint is provided. The couplings can be aligned when being put upon the shaft by simply placing a straight edge along the face, and any unevenness then corrected. It will be noticed that there are no projecting parts. These couplings are made for shafts from 1 1-16 to 6 inches, the single compression being for shafts up to 2¾ inches.

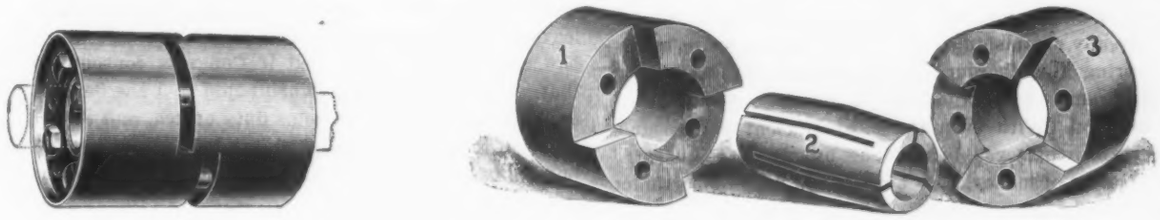


Fig. 1.—Single Compression.

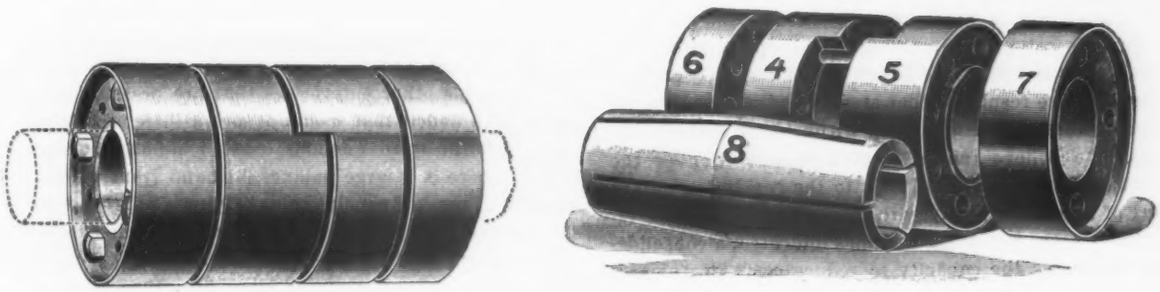


Fig. 2.—Double Compression.

THE SHAW COMPRESSION SHAFT COUPLINGS.

The new plant of the Carnahan Tin Plate & Sheet Company, at Canton, Ohio, is in operation to full capacity, turning out all grades of tin and terne plate, also black plate. This concern have decided to add another mill to their plant, which will make it a seven-mill plant, and advise us they have all the orders they can take care of for the next four months to come. The officers of the Carnahan Tin Plate & Sheet Company are: J. E. Carnahan, president; Edward Langenbach, vice-president and general manager, and W. M. Blecker, secretary and treasurer.

The Stanyon Engineering Company, Empire Building, Pittsburgh, are drawing plans for the addition to be built to the plant of the Columbia Bridge Company, at Carnegie, near Pittsburgh. It is said the total outlay will be about $800,000. It is the intention of the Columbia Bridge Company to build a new plant for the manufacture of channels, rounds, squares, slabs and other shapes, and also to build a material extension to their present bridge plant.

The Iron Age

New York, Thursday, February 13, 1902.

DAVID WILLIAMS COMPANY, - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - BUSINESS MANAGER.

Consolidations and the Cheapening of Manufacturing.

The first annual report of the United States Steel Corporation, recently published, contained a brief reference to the general results obtained in organization and in manufacturing. To those familiar with what has been achieved this paragraph in the document seems unnecessarily modest. As a matter of fact, the changes in method which have been initiated have already borne fruit to an astonishing degree and promise for the future really astonishing results. The economies in manufacturing in a thoroughly well organized consolidation are paramount to practically a revolution in costs of production. With even the most efficient plants ignorance of what was being done by others represented large sums of money, as is now proven when opportunity for examination throws a flood of light on the actual facts.

We have been accorded an opportunity to study the system of watching costs at the plants under control of the United States Steel Corporation and the methods adopted to take advantage of all the opportunities offered by consolidation to effect economies. We present elsewhere the results of that study, of course only in its broader lines, the details being withheld for obvious reasons. We believe that a careful consideration of the methods as described will lead to the conclusion on the part of any one familiar with manufacturing that, if effectively managed along the lines indicated, a consolidation possesses the capacity to reduce costs to a degree which is little short of revolutionary. A knowledge of the details is absolutely convincing on that point.

It has become almost an axiom with American captains of industry that low costs will come naturally, if plant be kept filled with work, but few of them have realized until the present era of consolidation how considerably even the best records of economy in manufacture could be beaten by co-operative effort.

One point has struck us particularly during our investigation of this subject, and that is that work like that now being done by those controlling the constituent companies of the United States Steel Corporation must finally settle the question of pre-eminence of the iron and steel industry of this country; that with the economies in manufacturing attained it occupies an unassailably dominating position. When the great consolidation was organized it might fairly be compared to an army consisting of struggling corps and regiments. It is rapidly becoming one huge closely knitted body of troops whose advance nothing could check.

Reducing the Revenue.

At the end of last week the Treasury contained just under $180,000,000 after setting aside funds for the gold reserve, for the redemption of all gold and silver certificates and the small remnant of "Sherman" notes and all liabilities to the banks for the redemption fund, for the payment of all outstanding checks and drafts, and for all other demand obligations of the Treasury. The surplus revenue for a little over seven months had exceeded $51,000,000, and the surplus revenue is usually much greater in the last than in the first half of the fiscal year. But if the surplus during the remainder of the fiscal year did not exceed $50,000,000 the available cash balance on June 30 would amount to $230,000,000, except so far as it might be reduced by the purchase of bonds. This method of keeping down the accumulation has been employed about as far as it can be without paying inordinate prices for bonds. In spite of it the available cash balance in the Treasury has increased nearly $8,000,000 since January 1.

Under these circumstances the Committee on Ways and Means proposes to repeal all the internal revenue taxation which was levied on account of the Spanish War, which at the present rate of collections would amount in the next fiscal year to about $69,000,000, and also the customs duty on tea, which amounts to eight or eight and a half millions a year. This, however, would not go into effect till the first of next year. This would still leave a surplus revenue against which the duty on Cuban sugar could be reduced if Congress consented to that. It is reported from Washington that the Senate is disposed to retain the customs duty on tea, and the war addition to the beer tax which, as reduced last year, is now running at the rate of $28,000,000 a year or something over.

But whatever may be done with the current revenue, there is to be considered the available cash balance of practically $180,000,000 now, and which can hardly be less than $230,000,000 by the end of the fiscal year. If the proposed reduction of taxes were effected and appropriations were largely increased for the Isthmian Canal and some other enterprises that are pressing, there might be a deficit that would absorb a little of this surplus. But the word "deficit" has an unpleasant sound even if there is a large balance on hand from which to meet it. From a financial point of view Congress would be justified in making a heavier reduction in revenues for the purpose of disbursing this surplus, but it is held that from a political point of view this would be a mistake, and if the Senate saved $36,000,000 of tea and beer taxes from repeal there is no probability that even large appropriations would deplete the surplus.

There is now deposited in national banks nearly $114,000,000 absolutely secure because secured by deposits of Government bonds, but yielding nothing to the Government, and not likely to be greatly increased because there is a limited interest of banks in putting up the bonded security. There is pending a bill to allow the funds to be deposited without bond security in return for which 2 per cent. interest is to be paid. To this there is some opposition on the ground of the safety of the funds; if the deposits were to be limited to the banks of large capital it is apprehended that the cry of favoritism would be raised; if funds were deposited in banks with a capital of no more than $100,000, it is feared by some that they would not always be perfectly secure.

In the meanwhile the public suffers frequent inconvenience because the Government absorbs more money than it pays out, thus contracting the currency. The radical remedy is the abolition of the "independent treasury," established at a time when banks were often badly managed and were politically suspected. The management of the revenues should be handled through a public bank or banks, as it is done in all European countries. Public sentiment does not seem to be prepared for anything so radical as this, and the most that

can be expected is a reduction of the revenues till the surplus will be small, and some increase in the return of idle funds to commercial use by deposits in banks.

German Trade, Domestic and Foreign.

The conditions existing in Germany have been studied very carefully by our consul-general in Berlin, Frank H. Mason, and his report is so full of information of grave import as to warrant thoughtful consideration. If it teaches anything it is that a country so lacking in natural resources as Germany, and so heavily handicappped by taxation for purposes which contribute nothing to the national welfare, cannot sustain a "boom" by any amount of business enterprise, and that the reaction from abnormal industrial and commercial activity must be in proportion to the overstimulation of industrial and commercial development which results from a supreme effort of international competition. How serious is the existing depression will be understood when we reflect that it has become necessary for some 180 firms of Berlin in the foundry, machinery and electrotechnical industries to appeal to the Prussian ministry to give them work at the bare cost of materials and labor, that they may continue to furnish employment to their workmen and thus relieve the State of an increased burden of pauperism. This is about as bad a condition of affairs as could be, but that it exists we have the authority of the Berliner *Tageblatt*, due largely to widespread distrust of the economic policy of Germany, and to the fear that the rapacity of the agrarians will result in depriving the empire of the benefit of commercial treaties with countries in which Germany has hitherto found her most profitable foreign markets.

Since about the middle of 1900 German financiers and business men have lived in the fear of an imminent general collapse of everything tributary to the national prosperity. That this fear has not been realized as fully as seems to have been generally expected is due in large degree to the heroic efforts of the Deutsche Bank and other strong monetary institutions which have held up the weaker banks and inspired them wit ha courage which nothing in their own situation warranted. By the depreciation in bank stocks alone the losses to German investors are estimated at something over 2,000,000,000 of marks. The depreciation in industrial stocks of all kinds has been more than proportionate to those in banking investments; and when the almost complete stagnation in the iron, steel and electrical industries is considered, the wonder grows that the sustaining influences were strong enough to avert what would have amounted to national bankruptcy had capital failed to sustain credit. The crisis seems to have been passed in September of last year. Since then confidence has been slowly re-established, and while there is not much encouragement in the situation, and still less in the immediate outlook, a calamitous panic no longer seems imminent and the fear of it is past. Mr. Mason notes as among the encouraging signs of the financial situation the advance within the past few weeks in the value of the shares of certain banks which had put their credit in jeopardy by sustaining tottering industrials. A notable illustration of this is found in the case of the National Bank of Germany, an institution with a capital of 60,000,000 of marks, and admittedly well managed, whose stock since the middle of November has advanced from 96.8 to 105, chiefly because of the recovery of confidence and the better outlook for the class of railway properties which this bank was interested in sustaining.

That the situation is not wholly discouraging may be judged from the optimistic tone in which Herr Koch, one of the wisest and most conservative financiers of Germany and president of the Reichs Bank, who is quoted by the *Neue Freie Presse* as saying that the evidences of an industrial revival are marked. He says that in the textile industries new life and spirit are manifest, that the brass and bronze industries of Wurttemberg are again active, and that the electrical industries, which perhaps were hardest hit by the reaction of 18 months ago, are feeling the thrill of a new life on the strength of larger and more profitable orders than were expected so soon. Concerning the iron, steel and coal mining industries President Koch speaks less hopefully. For them he sees no prospect of an early recovery, but the building trades are looking up, and activity there will be reflected in many lines.

In view of these conditions trade between Germany and the United States has suffered less than might have been expected. Imports from this country show important shrinkages, chiefly in the items of copper and corn, for both of which there was good reason. Wheat showed an important gain and most of the great staples held their own in 1901, as compared with 1900. Exports of German products to this country showed some falling off, but as this was expressed in values it may not have indicated a proportionate shrinkage in volume. In fact the decline in sugar prices would, as Mr. Mason shows, account for all the shrinkage noted in a comparison of German exports to this country last year, as compared with the year before. Mr. Mason's comments on the German situation, if not especially luminous, are certainly interesting and warrant quotation. He says:

"If there is in the history of the present crisis in Germany one definite, pertinent object lesson for the study of other nations—especially the United States—it is the manner in which many of its industrial and commercial interests have been sustained and carried through this period of stagnant and inert local markets by a well established and skillfully supported export trade. During the years of her prosperity Germany had laid the foundations of her foreign commerce broad and deep. She has trained her young men for efficient commercial service in foreign lands and has subsidized new steamship lines and sent her ships, bearing not only her manufactured goods but her banking capital, her engineers and her constructors, to the remote regions of the earth. In some instances this may have been done unwisely or to excess; in others the profit may be meager and long deferred, but, broadly speaking, the reward of all this wise foresight and careful preparation has already come.

"The exports of iron and steel during the first six months of 1901 exceed those for the same period in 1900 by 250,000 tons, or 33.6 per cent., and, as a despairing ironmaster of Westphalia has recently declared in an appeal to the Government against the threatened increase in grain duties, 'our export trade is the last, best and only living thing that we have left." It is doubtless true that some of the merchandise exported during the past year has been sold at prices which yielded little if any profit to the manufacturer, but the sales have enabled him to clear away accumulated stocks, recover the cost of labor and materials and keep his operatives employed, even though at reduced hours and wages. The logical effect of the whole situation is to inspire with new determination those who, in the pending conflict of interests in fiscal legislation, stand for adherence to the policy of commercial treaties based upon reciprocity, the policy which, entered upon a decade ago, ushered in the golden age of German expansion, progress and prosperity."

It is not easy to see just how this "object lesson" has great interest for the United States at a time when her domestic requirements appear to exceed those of all the

rest of the world, and when no prospective advantage would repay the effort to gain and hold foreign markets for goods which cannot be produced in quantities sufficient to meet domestic needs. However, it is probable that our consul-general at Berlin knows a great deal more about German than about American industrial conditions, and that what he has to say on this subject is of less interest for readers in this country than his descriptions of conditions in the country which is the scene of his official labors. If the time comes, as it probably will, when to relieve our oversupplied markets we have to sell at prices which yield little if any profit, it will be a disagreeable necessity to spoil a good many markets for German goods by underselling what we find there. The longer this can be deferred the better for us and for the countries which now need the business we not only do not need but could not conserve if we had it.

Buyers' Syndicates in Germany.

An interesting movement is developing in the German iron trade, partly brought about by the dissatisfaction among consumers of raw material with the course taken by the powerful syndicates during the past 18 months. The buyers of raw materials and of intermediate products are organizing buying syndicates. At the present time negotiations are proceeding among the mills who purchase in the open market steel in the form of ingots, blooms, billets and slabs. There seems to be some probability that success will crown these efforts, which are expected by the mills interested to lead to important advantages. The undertaking has been stimulated by the promising outlook for an organization among the consumers of pig iron in the Rhenish Provinces and Westphalia, known as the Rheinisch-Westfaelishe Roheisen-Einkaufs-Vereinigung of Duesseldorf. The works which have joined this association have surrendered the right to make their own purchases of pig iron at home or abroad during the life of the syndicate. The central purchasing office must buy the pig iron, giving as much consideration as possible to the requirements regarding quality called for by the individual members. Only Swedish and Styrian charcoal pig iron and certain special brands are excepted. Each works which is a member of the syndicate has a vote, provided its annual requirements are up to 5000 tons. For each 5000 tons annual consumption one additional vote is granted up to a maximum of five votes. The purchases of pig iron must always cover the succeeding quarter of the calendar year. Upon the demand of the Board of Managers each member must state his requirements for the quarter following. The board then enters into negotiations with the producers of pig iron for the total quantity needed by the association, and after securing the best possible terms, must submit them to a general meeting of the syndicate, the final purchase being made only after the approval of that body has been secured. Each member must then make its own contract and alone is liable for taking the quantity bought. At least six weeks before the beginning of a new quarter the works report their requirements of different grades of pig iron to the Board of Managers. If it proves impossible, temporarily, to cover the requirements reported the tonnage is cut down in favor of those who reported in time.

Whenever individual works desire to buy beyond one quarter of a year the management must carry out the order, but must first notify all the other members. The management has no right to buy for delivery beyond half a year.

An interesting provision deals with those quantities of iron which the association buys from furnaces independent of the pig iron syndicate or from foreign makers at a price above that of the syndicate. The excess price is refunded to those buyers who have contracted with the furnaces not controlled by the pig iron syndicate.

This sketch of the main features of the plan of the pig iron buying association shows that it has been very carefully thought out. It proves that the consumers who must rely upon the open market have felt the necessity of co-operating in order to counteract the power which the united furnace interests were able to and did wield, and which was keenly felt, particularly by those who, as producers of more highly finished goods, had no affiliations with furnace interests, which some of their competitors enjoyed. Of course, the movement may be regarded as experimental, but it is significant that the idea is being seriously entertained by others interested in cognate branches of the German iron trade.

CORRESPONDENCE.

The First Iron Works Chemist.

To the Editor: It is so hard to realize that Mr. Carnegie can make a mistake, it is with hesitancy that I venture to correct a statement which the daily press reports him as having made in his speech at Stevens Institute on Thursday evening, the 6th inst., when he stated that his firm were the first ones in America to employ a chemist in direct connection with iron works, and who was paid the munificent salary of $1500 a year.

Justice to the memory of the late Hon. Daniel J. Morrell, general manager of the Cambria Iron Company of Johnstown, Pa., warrants me in stating that the honor belongs to him and his company. Incidentally, I would mention that I was the chemist and entered upon my duties for the Cambria Company on August 1, 1860, establishing a laboratory for them in connection with their works at Johnstown. I think that date was anterior to Mr. Carnegie's engaging in the iron business.

I would say further that, either through want of confidence in the result of the departure or else in the young man employed, the salary paid, instead of being at the rate of $1500 per year, was $30 per month, and the young man was very glad to obtain the situation.

ROBERT W. HUNT.

NEW YORK, February 8, 1902.

Pennsylvania Engineering Works Meeting.—At the annual meeting of the stockholders of the Pennsylvania Engineering Works, New Castle, Pa., the following officers were elected: George Greer, president; Edwin W. Ohl, vice-president; Edward King, secretary, treasurer and general manager; W. H. Shipler, superintendent, and E. W. Beadel, chief engineer. The Pennsylvania Engineering Works are about to erect a large extension to their plant, which will about double their capacity. Recently the capital stock of the company was increased from $150,000 to $225,000, and now the stockholders are contemplating increasing the capital stock to $500,000. The concern are builders of blast furnace and steel plant construction, general machine and plate work and iron and steel cars.

Through the efforts of the Wheeling Board of Trade, Wheeling, W. Va., of which George A. Laughlin is president, stock is being subscribed at the present time for a company, to be known as the West Virginia Bridge Company. As soon as the stock is entirely taken, it is expected, the new works will be located at Glenns Run, just above Wheeling, on the West Virginia side. Additional stock is also being taken by the River Side Bridge Works, at Martin's Ferry, Ohio, and this plant will also be materially increased, indicating that the Wheeling district will soon have two flourishing bridge plants.

A Modern Consolidation and Economies in Manufacture.

THE SYSTEM DEVELOPED BY THE UNITED STATES STEEL CORPORATION.

A criticism which has been leveled against the modern industrial consolidations is that close and progressive management is virtually impossible with so large an organization. It is urged that no one man, or group of men, can effectively handle plants so scattered, interests so diversified, and that therefore results, particularly on the manufacturing side, cannot be as good as those formerly obtained under individual personal management.

It is argued that a forceful man or a group of experienced energetic owners can manufacture more cheaply because their individuality must make its impression upon the whole undertaking and its every detail. With their enthusiasm, energy, watchfulness and devotion, they must be more than a match for the staff of managers of a huge corporation, however faithful, experienced and progressive each may be.

We believe that this conviction, widespread as it is, will be dispelled as the knowledge gains ground of what is being done in at least one case, in the direction of developing an effective management in individual plants under central control.

Some intensely interesting developments along this line have been taking place during the past eight months in the United States Steel Corporation, and while it is impossible to go into detail, the general outlines of the methods pursued may be presented, the writer having been recently permitted to make a close examination of this branch of the work of the steel corporation.

The United States Steel Corporation own the stock of a number of corporations which supply the raw materials, transport them and convert them into a series of finished iron and steel products. Each of the constituent companies of the United States Steel Corporation have their own organization, with their president supported by a commercial and technical staff, the latter in charge of their manufacturing operations. The officers of the corporation are the connecting links between the individual organizations.

It will be understood that a considerable number of the constituent companies carry on like manufacturing operations. Thus a number of them operate blast furnaces, and Bessemer steel plants, and other companies manufacture open hearth steel. There are a number of mills rolling the same finished product, although under the management of different constituent companies. It is evident that a central department can do much by advising as to improvement of practice and of management.

A Uniform System of Accounting.

The first step taken, in order to clear the ground, and in order to establish a basis for comparison, was to develop a common system of cost accounts, which should embody the best features of all. Meetings were held of the chief accountants of all the constituent companies. In many cases these men had already had much experience in selecting the best from the numerous concerns which had only shortly before been brought together through a consolidation. The completeness of the cost accounts varied greatly, from the famously elaborate systems of some of the companies to the lack of all data which survived in a few instances. The elaboration and working out of details was turned over to special committees of assistant accountants, who reported back to the main committee, and thus finally the broad lines were agreed upon, covering the common ground, while each constituent company retained such features as its particular condition made it desirable to adopt.

It is difficult to convey adequately what an enormous amount of work this involves, and how minutely and accurately costs are traced. Each constituent company have printed for their officers and accountants a book giving the main divisions and subdivisions of the accounts. One of these books, for instance, has 250 pages, and contains upward of 1500 items.

Differentials.

An analysis and a comparison of costs of manufacturing of plants working in many respects under very different conditions is, of course, impossible unless allowances are made to make the basis fair to all. For instance, of two open hearth plants one may be operating with a relatively small percentage of pig iron and a high percentage of scrap. One plant may have available natural gas as a fuel, while another is running on producer gas. One may be producing a high carbon steel, while another is steadily employed in manufacturing a dead soft steel. These differences are harmonized by establishing differentials or standards, which are established by a committee of experts connected with the different works.

The object of this analysis of costs and of the selection of certain basal cost items is to establish the relative efficiency of the different plants, with the object of assigning to each a relative rank and thus reveal clearly the strength or the weakness of the management of each. These basal items of costs are tabulated in "competitive sheets."

An analysis of the costs having been made, the problem naturally comes up for solution, What methods should be adopted to bring about an improvement and make it effective?

To begin with, the comparison or competitive sheets are scrutinized by the president of each constituent company, whose natural ambition is to bring his plants and practice up to the highest pitch of cost efficiency, and thus earn the maximum of dividends. Through him the technical staff have access to these comparisons, and may note in detail in what respects they are in advance or behind their rivals.

The Committees.

The organization through which costs are studied and improvements are effected is a committee chosen by the officers of the constituent companies from among the keenest of the superintendents, managers or men in charge of departments engaged in that particular branch of manufacture, those who have made the best showing heretofore, men whose record proves them to be experts. The aim is always to have represented on each committee both technical and practical men. Thus there is a Blast Furnace Committee, a Bessemer Committee, an Open Hearth Committee, a Fuel Committee, a Rod Mill Committee, a Committee for Handling Materials, a Committee for the Manufacture and Use of Zinc, a Committee for the Use of Sulphuric and Muriatic Acid, &c.

As soon as they were selected, the members of each committee studied the cost sheets available, to determine the best methods of comparison, to fix upon the differentials or standards, &c. Then the committees began a tour of inspection of the different plants, in order to observe methods, exchange experiences with the local managers, or make suggestions.

Having established the standards and with the competitive cost sheets showing not only the relative rank of each plant, as a whole, but also its position as to the principal items, the work of bringing up the practice to the higher plane begins. The reasons for the lower cost at one plant as contrasted with another are studied, and frequent conferences take place at which methods are freely and vigorously discussed.

Nor do the smallest details escape the vigilance of the committees, because what may seem locally of minor importance becomes large in the aggregate. Thus, recently there met together a number of managers and chemists to study over the question of the consumption of acid in pickling, the total tonnage required by the con-

stituent companies being very large. This committee has already discovered some very surprising difference in the practice, and is now busily engaged in collecting all the material available as a preliminary to a searching and widespread reform.

The situation having been closely studied, it becomes the duty of each committee upon the basis of the detailed cost of each individual plant, as contrasted with that of others, to fix an attainable cost for some particular item or items in which some particular plant has not shown to advantage. The manager of that works must aim to bring his cost in that respect down to a reasonable figure.

The general plan, as set forth above, is developed further. Thus the average of six of the best managed blast furnaces is taken as the attainable cost for the conversion of the raw materials into pig iron. For each of the other furnaces a statement is prepared showing the sum which the individual plant would save if it succeeded in coming up to the standard of the whole group of effective plants, and the Blast Furnace Committee point out the manner in which such results can be obtained.

In another department the cost is figured upon the basis of like cost of raw materials, so that the comparison narrows down to relative efficiency of management.

It will be readily understood that this committee system promotes the keenest rivalry, and leads to unreserved criticism and open discussion. At first it repeatedly happened that the manager of one plant found it almost impossible to believe that results were at all attainable such as were shown to have been achieved at other works. And yet it has occurred that within a brief period the doubter had himself secured like results, or had even outstripped the record.

Contrast the rivalry thus created with that which existed for so many years among the managers of American blast furnaces and steel works as to who was the most successful in producing the greatest tonnage in one day, or month, from a unit of plant. Admirable though it was, it seems one sided, and almost childish when compared with the struggle of showing the maximum results in profits.

The writer is able to state (from data shown him) that in one department the attainable cost, based on the average efficiency of a number of the better managed works, represented originally a possible saving of $3,000,000 per year for all companies manufacturing the same product, and much of this saving has since been effected.

Probably the most important result of the committee work which has been organized by the constituent companies is its educational effect upon the whole staff of technical managers. A free exchange and a constant searching comparison of results takes the place of secretiveness. One man's bent may lie in the direction of mechanical improvements, another's in the handling of men, that of a third in metallurgical manipulation. Under the system developed every one is kept on the *qui vive* in every direction, and each becomes an all round expert.

What is being done in the constituent companies at large is, of course, going on in a similar way within the narrower special field of each of the constituent works thereof. Every special little appliance, every minor manufacturing kink which each of the individual plants possessed and sedulously guarded is now the property of all, and is being rapidly adopted. We understand that the elevation of the standard of efficiency which has resulted from this interchange of all that is best has been very marked.

Only those who are in constant touch with manufacturing operations can appreciate what it seems when there are brought to bear upon the results the close study and long experience of a number of engineers and managers.

One point is worthy of mention as bearing upon the general question of developing the maximum efficiency of works management, and upon the attainment of minimum costs of manufacture, and that is that all the leading men identified with the producing side have an interest in the profits of the concern with which they are identified. The works managers are not simply salaried men; they are practically partners who share in the financial results of the establishment.

The putting into practice of the system described has already resulted in economies which in the aggregate amount to many millions of dollars. It is probably true that after the first general equalization has taken place further economies will come more slowly, but it is evident that it will not bring the end of such savings in cost, even when the necessary capital expenditures have been made in order to provide the best equipment. On the contrary, they will continue, owing to the generous spirit of rivalry between the works managers. The system adopted assures for the future an efficient, alert and progressive management, which must result in obtaining the ultimate economy in manufacturing, so that the idea prevailing that large consolidations are hampered by their size is erroneous.

Central Pennsylvania Notes.

HARRISBURG, February 11.—The Susquehanna Iron & Steel Company have ordered repairs and a general overhauling of their Vesta furnace, at Watts, Lancaster County, and it will be started within two months and run for a long time. The furnace has been out of blast for some time.

The shareholders of the South Chester Tube Company have re-elected their officers.

The strike at the North Foundry of the Reading Foundry Company has been settled and the men are at work. They secured a bi-weekly pay and a restoration of a reduction after a conference with the officers of the company.

The Harrisburg Foundry & Machine Works are running their plant day and night to keep up with their work, and orders are plentiful. Among the orders received lately have been an 800 horse-power direct connected Harrisburg standard engine for the Dunbar Electric Light Company of Dunbar, a four-valve compound engine for the Reading plant of the United Power & Transportation Company and two 500 horse-power engines for the same company's Wilmington plant; the tenth order for an engine for the American Sheet Steel Company, the engine to be 150 horse-power for a plant near Pittsburg, and the sixth order for a plant of the National Tube Company.

One of the E. & G. Brooke Iron Company's blast furnaces is to be started soon. The company are running their plant at Birdsboro on full time.

The Pennsylvania Steel Company have given an order for two 200 horse-power engines for one of their new buildings to the Harrisburg Foundry & Machine Works. The engines will be Harrisburg standard tandem compound direct connected.

The American Construction Company have been granted a charter by the State and will begin business with an office in Allegheny. The company have a capital of $2000, which it is said will be increased. The incorporators were Alexander Gordon and H. C. Miller, Allegheny City, and F. M. Sullivan, New York.

It is said on Capitol Hill, in this city, that the new Sharon Foundry Company will be incorporated with a capital of $250,000. Their place of business will be at Sharon.

The Glenville works of the American Foundry & Machine Company are well supplied with orders and they are being run on full time. The company, who were recently incorporated, have taken orders for large water cylinders, of which they are making a specialty.

President Steacy of the Susquehanna Iron & Steel Company denied the report that the York rolling mill was to be removed. It has been run steadily. S.

A new steel roofing establishment will be opened shortly at Milwaukee, Wis., to be named the Milwaukee Corrugating Company. It will be under the direction of Louis J. Kuehn, who for a number of years has been manager of the La Crosse Steel Roofing & Corrugating Company, La Crosse, Wis. The company last named will continue in business as heretofore, being now exclusively owned by John C. and G. F. Kroner, who have purchased Mr. Kuehn's interest.

The German Pig Iron Syndicates.

Our German correspondent has prepared the following list of blast furnace plants forming the Rhenish Westphalian and the Siegerland pig iron syndicates:

I. Rhenish Westphalian Pig Iron Syndicate, Dusseldorf.

1. Aplerbecker Huette, Aplerbeck.
2. Bergischer Gruben und Huetten Verein, Hochdahl.
3. Friedrich Wilhelms Huette, Muelheim on the Ruhr.
4. Bochumer Verein fuer Bergbau und Guessstahlfabrication, Bochum.
5. Buderus'sche Eisenwerke, Wetzlar.
6. Eschweiler Bergwerks-Verein, Eschweiler.
7. Gewerkschaft Carl Otto, Adelenhütte, Porz on the Rhine.
8. Gutehoffnungshütte, Oberhausen.
9. Hörder Bergwerks und Hütten Verein, Hoerde.
10. Hütten Actien Gesellschaft vormals Carl von Born, Dortmund.
11. Fried. Krupp, Essen.
12. Concordiahütte, Gebr. Lossen, Bendorf on the Rhine.
13. Rheinische Bergbau und Hüttenwesen Act. Ges., Niederrheinische Hütte, Duisberg.
14. Schalker Gruben und Hütten Verein, Gelsenkirchen.
15. Union, Act. Ges. für Bergbau, Eisen und Stahlindustrie, Dortmund.
16. Rheinische Stahlwerke, Meiderich, near Ruhrort.
17. Act. Ges. Phœnix, Laar, near Ruhrort.
18. Gewerkschaft Deutscher Kaiser, Bruckhausen on the Rhine.
19. Eisen und Stahlwerk Hoesch, Dortmund.

II. Siegerland Pig Iron Syndicate.

(Verein für den Verkauf von Siegerländer Roheisen, Siegen.)

1. Act. Ges.. Niederscheidener Hütte, Niederscheiden.
2. Birlenbacher Hütte, Geisweid.
3. Brachbacher Hochofengewerkschaft, Brachbach.
4. Act. Ges. Bremerhütte, Geisweid.
5. Act. Ges. Charlottenhütte, Niederscheiden.
6. Köln-Müsener Bergwerks Act. Verein, Kreuzthal.
7. Act. Ges. Eiserfelder Hütte, Eiserfeld.
8. Act. Ges. Eiserner Hütte, Eiserfeld.
9. Act. Ges. Finnentroper Hütte, Finnentrop.
10. Bergwerks und Hütten Act. Ges. Friedrichshütte, Neunkirchen.
11. Geisweider Eisenwerke, Geisweid.
12. Hochofenwerk Germaniahütte,, Grevenbrück.
13. Gewerkschaft Storch und Schoeneberg, Kirchen.
14. Siegener Hütte, Siegen.
15. Act. Verein Johannshütte, Siegen.
16. Gewerkschaft Marienhütte, Eiserfeld.
17. Act. Ges. Rolandshütte, Weidenau.
18. Wissener Bergwerke und Hütten, Brückhöfe, near Wissen.

The Railway Spring Company of America.

Negotiations have been about completed for the formation of the Railway Spring Company of America, with a capital of $20,000,000, who will take over about 95 per cent. of the steel railway spring capacity of the country. The consolidation has been largely promoted by Frank B. Smith, secretary of the Crucible Steel Company of America. It is possible Mr. Smith may become president of the corporation, and if so, the manufacturing headquarters will be in Pittsburgh, while the financial affairs will be centralized in New York. The companies included in the consolidation are the A. French Spring Company and the Railway Spring Department of the Crucible Steel Company of America; Detroit Steel & Spring Company, Detroit, Mich.; National Spring Company, Pickering Spring Company, Limited, and the Charles Scott Spring Company of Philadelphia. Half of the capital is 7 per cent. cumulative preferred stock, entitled, in addition to dividends, to the payment of its par and all unpaid dividends upon the distribution of assets. The corporation cannot mortgage any of their property, except by purchase money mortgage, without the assent of two-thirds in value of the preferred stock. The company acquired $1,500,000 in cash for working capital, in addition to the property, patents, equipments and good will of the various combining companies. The company will have a yearly capacity of 60,000 tons of steel railway springs. No formal organization has yet been effected, and no plans have been outlined for the improvement of any of the plants. Several meetings will be held in New York this month, and it is believed the formal organization can be effected prior to March 1.

George A. Chalfant of Spang, Chalfant & Co. of Pittsburgh has gone to Mexico and Colorado for the winter.

MANUFACTURING.

Iron and Steel.

The Musconetcong Iron Works expect to blow in their furnace at Stanhope, N. J., about the 20th inst.

The Cherokee Furnace, at Cedartown, Ga., was blown in on January 15.

The Colorado Fuel & Iron Company, Denver, Col., have awarded contracts for the erection of 800 coke ovens at Smith's Canyon, and 600 at Torres, Col. These will increase the number of their ovens to 2000 and will give them an annual output of about 1,500,000 tons.

Cooper, Hewitt & Co., expect to blow in Pequest Furnace, Oxford, N. J., in March.

The Tidewater Steel Company, Chester, Pa., have broken ground for the erection of their new 50-ton open hearth steel furnace. There are three furnaces now in operation at the plant and the new one will be known as No. 4.

Wm. H. H. Hart, Parrott Building, San Francisco, Cal., advises us that a large steel plant will be erected on the Pacific Coast in the neighborhood of that city.

The Struthers Furnace Company, Cleveland, Ohio, started up their Anna Furnace on January 11.

The Blue Mountain Furnace Company, Maryland, have just blown in their Blue Mountain Furnace.

The Rochester & Pittsburgh Coal & Iron Company are to build two blast furnaces, 80 x 19 feet, between Falls Creek and DuBois, Pa. Julian Kennedy is consulting engineer.

Neal Brothers of Pittsburgh, who are operating a mill on the South Side in the manufacture of black sheets, are preparing to install a galvanizing plant to make galvanized sheets for the open market.

Ben Catchings of Birmingham, Ala., is at the head of a movement for the establishment of a rolling mill at Tuscaloosa. The company are controlled by New York and Birmingham capitalists and desire the citizens of Tuscaloosa to donate a site on the Warrior River. Mr. Catchings advises us that no orders for equipment have been placed, and he would be pleased to receive catalogues and quotations from builders of rolling mill machinery and boiler makers.

Some of the contracts for the new open hearth plant to be built by the Youngstown Iron, Sheet & Tube Company, at Youngstown, Ohio, have already been placed. For this new plant plans are being drawn by S. V. Huber & Co., Ferguson Building, Pittsburgh, who are consulting engineers for the firm. The supply of metal will be furnished by Alice Furnace, at Sharpsville, Pa., which the Youngstown Iron, Sheet & Tube Company bought some time ago from Pickands-Mather & Co., and also from a new blast furnace which the Youngstown Iron, Sheet & Tube Company will build at Youngstown just beside the open hearth plant. The company recently bought some ore properties in the Mesaba region to supply these furnaces. A lodge of the Amalgamated Association has been organized among the employees of this concern.

William McIntyre & Sons, Sharon, Pa., have been awarded a contract for building five open hearth furnaces, 12 gas producers and six annealing furnaces for the American Steel Casting Company, at Alliance, Ohio. The work on this contract will be started in two or three weeks.

The report is officially denied that the Cambria Steel Company will build another blast furnace at Johnstown, Pa.

The structural steel work for the new Lincoln avenue bridge in Pittsburgh has been given to the American Bridge Company at a price said to be $70,000. The material will be rolled in the Homestead mills of the Carnegie Steel Company.

The Cambria Steel Company, of Johnstown, Pa., have received an order from the West Virginia Central and Pittsburgh Railroad for 500 hopper bottom steel cars.

General Machinery.

The Saint Cloud Iron Works, St. Cloud, Minn., manufacturers of granite column cutters and polishers, will build a new plant in the spring. The building will be 60 x 90 feet, of brick, and will be built up and around the present shop.

The National Steam Economizer Company of Springfield, Mass., are looking around for a new site upon which to locate their works.

The C. C. Wormer Machinery Company, Detroit, Mich., who recently purchased the plant of the Michigan Iron Works, at Grand Rapids, have sold the greater portion of the machinery and will remove the balance to Detroit, where they will place it on sale.

C. O. & A. D. Porter, Grand Rapids, Mich., manufacturers of wood working machinery, will build an addition to their plant, increasing the capacity one-third. No new equipment will be required.

O. M. Sciple of Sciple Pump Works, Philadelphia, Pa., advises us that he is in the market for some machine tools, purchase of which will be made April 1. Mr. Sciple has purchased the Gleason & Bailey Pump Works, at Seneca Falls, N. Y., which

he will operate. Associated with him will be Frank C. Beebe, who has for a number of years been connected with the old firm as superintendent.

The Smith Machine Company, Milwaukee, Wis., have incorporated with a capital stock of $15,000 for the manufacture of the Smith concrete mixer. The company have a fully equipped shop in operation. The sales department is under the personal control of T. L. Smith, the inventor of the machine.

Complete equipment for their new plant is required by the Battle Creek Machine & Foundry Company, recently organized by Frank E. Halladay and others of Battle Creek, Mich., for the purpose of doing a general machine and foundry business. They have options on three sites with good railroad facilities, one of which will shortly be purchased and the erection of a machine shop, 40 x 80 feet, two stories, and a foundry, 40 x 80 feet, one story, be commenced thereon. The company intend to pay special attention to heavy work and will equip the plant with latest improved machinery adapted to that class of work.

J. L. Rogers, Riverside, Cal., is erecting a new machine shop, 25 x 30 feet, and foundry, 25 x 40 feet. He reports three months' work on hand.

The Cameron-Tennant Machine Works, Richmond, Va., have recently made an addition to their machine shop, doubling its capacity. They have put in a new radial drill, lathes and molding machines. They are now kept going full time building special machinery and their power pumps.

Boilers, Engines, &c.

The business of William Bros, boiler makers, Minneapolis, Minn., has been incorporated with a capital stock of $300,000, under the style of the William Bros Boiler & Mfg. Company. The officers are William Bros, president; Frederick Bros, vice-president; Joseph M. Bros, secretary, and Bernard Bros, treasurer. The company are erecting a large plant in that city.

The Sintz Gas Engine Company, Detroit, Mich., have increased their capital stock from $30,000 to $100,000.

Foundries.

The Fountain City Drill Company, La Crosse, Wis., will build an addition 50 x 100 feet to their foundry, work on which will be commenced in the spring. They also expect to enlarge their warehouse.

The Michigan Malleable Iron Company, Detroit, Mich., contemplate building an extension to their plant.

The Newport News Shipbuilding & Dry Dock Company, Newport News, Va., have purchased the Caskey foundry, which they will operate as one of the departments of their yard. They expect to have it running within a few weeks.

The E. & G. Brooke Iron Company, Birdsboro, Pa., are to build a steel foundry, 248 x 220 feet, with an addition of 62 x 140 feet. The plans are being made by S. V. Huber & Co. of Pittsburgh.

McKenna Brothers Brass Company, Limited, Pittsburgh, manufacturers of fine brass work, have recently bought some ground adjacent to their new works, which will be used at some time in the future for material extensions to their present plant.

Fires.

Fire damaged the stone cutting plant of William Gray & Sons,, Philadelphia, Pa., February 9, to the extent of $50,000. Of the loss, $40,000 is on machinery and tools, some of which cannot be replaced in this country.

The machine shop and part of the foundry of the Wallace Mfg. Company, at Frankfort, Ind., were recently destroyed by fire. The loss will reach $4000.

The Red Wing Sewer Pipe Company's old plant at Red Wing, Minn., was destroyed by fire February 7, entailing a loss of from $75,000 to $100,000, with insurance of $50,000. The loss includes valuable machinery, patterns and dies.

The plant of the Wireton Heading Company, at Wireton, 30 miles from Chicago, Ill., was destroyed by fire February 6; loss about $300,000. The company manufacture a heading apparatus, and had in the buildings a large amount of machinery, all of which was practically ruined.

The large car works of the Chicago, Rock Island & Pacific Railway, at Horton, Kan., were destroyed by fire February 7. The loss on the building is $50,000, machinery, $100,000, and materials $100,000. The engine house was destroyed, but the new $75,000 boiler plant was saved. The property saved is valued at about $2,000,000, and it is understood that the company will rebuild the part burned at once.

The fire which swept over a good part of Paterson, N. J., February 9, did $25,000 damage to the plant of the Paterson-Passaic Gas & Electric Company.

The plant of the Shadbolt Mfg. Company, manufacturers of wagons and carriages, at Flushing avenue and Cumberland street, Brooklyn, N. Y., was destroyed by fire February 9. The loss is placed at $250,000.

The pail manufacturing plant of John P. Rust, at Keene, N. H., was destroyed by fire February 10. The loss is about $35,000, with insurance of $30,000.

Hardware.

A fire occurred on Sunday afternoon, February 2, in the nickel plating plant of the Stover Mfg. Company, Freeport, Ill., at their old works, resulting in the loss of the building and contents, amounting to about $6000 to $8000, fully covered by insurance. The origin of the fire is unknown, except that it may have resulted from an effort made in the morning by some of the men to thaw out the pipes used for heating the building. A watch was kept throughout the day, and one of the men was in the building a short time before the fire was discovered and saw no evidence of a fire at that time. Notice has been sent to the insurance companies carrying the risk, and it is expected that adjusters will be at work upon the loss in a day or two. In the meantime new machinery will be purchased and set up in the factory now being vacated by the removal of machinery and stock to the new plant, and for the present at least these buildings will be used as temporary quarters for the nickeling department. The fire affects the hardware department of the business only and will not delay operations of the business outside of the nickeling department, and this only for a comparatively short time.

The Eagle Lock Company of Terryville, Conn., whose New York headquarters are at 98 Chambers street, will soon erect a large factory building adjoining the Ogden factory, so called, on South Main street, Terryville, and in line with the office of the corporation. The new building will be of brick, 50 x 250 feet, and will contain four stories and a basement which will be used in the production of cabinet and trunk locks, besides the company's special post office equipments and other lines of cabinet hardware. There will be two brick towers on the south side, containing two freight elevators, and two iron bridges will connect the second, third and fourth stories with the Ogden factory and the brick shop known as factory No. 2. A two-story fire proof vault, 40 feet square, will also be built at the west end of the new factory to contain the company's valuable dies and tools, and a brick addition to the iron house of one story, 75 x 25 feet, will connect the latter with the new shop. The new building will have a gravel roof and will conform in style of architecture to the Ogden factory. These additions are rendered necessary by reason of the increasing business, which demands an extension of present facilities besides making provision for the future. Architect Theodore B. Peck of Waterbury, who designed the Ogden factory, is now preparing detailed plans. Work upon the new building will be pushed forward as soon as these plans are ready.

The Chester Stove Company, Manchester, Va., which was established in November, 1898, expect to enlarge their plant the coming spring. They do all kinds of iron foundry work, their specialty being stoves, of which they make a full line.

John E. Smith's Sons, Buffalo, N. Y., have incorporated their business and intend to manufacture canners' and preservers' machinery in addition to butchers' and packers' machinery.

The Marcy Mfg. Company, Bluffton, Ind., manufacturers of Red Cross windmills, pumps, tanks, cylinders, &c., held their annual meeting on January 20, which resulted in the election of the following Board of Directors for the ensuing year: Wm. C. Elston, president; G. A. Ullman, vice-president; E. V. Livers, secretary; E. L. Murray, treasurer; J. A. Ullman, general manager. The secretary's report showed a large increase in the company's business over the preceding year, and it was decided to enlarge their manufacturing capacity.

Miscellaneous.

The Maryland Biscuit Company, 516-532 South Charles street, Baltimore, Md., will erect a new factory on Barre street, to be six stories, 94 x 300 feet, of brick and iron construction. The cost will be between $200,000 and $350,000. All machinery has been purchased.

Louis Kuehn, who for a number of years has been manager of the La Crosse Steel Roofing & Corrugating Company, La Crosse, Wis., has sold his interest in that company and has started a new plant in Milwaukee under style of Milwaukee Corrugating Company. The new plant will be equipped with the most improved machinery, and is expected to be ready for operation March 15.

The machinery in the Youngstown works of the American Can Company, at Youngstown, Ohio, is being removed to another plant in Chicago.

The Fredonia Mfg. Company, of Youngstown, Ohio, will increase their capital stock from $50,000 to $150,000, and will engage in the manufacture of automobiles.

At the annual meeting of the Hanlan-Buck Mfg. Company of St. Louis, Mo., manufacturers of and dealers in railway supplies, held February 4, the following directors and officers were elected: A. H. Handlan, president; E. W. Handlan, vice-president and treasurer, and A. H. Handlan, Jr., secretary.

The Railway Appliance Company, 31 North Pearl street, Albany, N. Y., have been incorporated and have organized with the following officers: John A. Howe, Jr., president; Frank E. Selkirk, secretary and treasurer, and Alexander Selkirk, general manager.

Fred. Cook of Davenport, N. Y., is interested in a projected electric plant, the power to be obtained at Cook's Mills.

An Enormous Consumption of Pig Iron.

A Record Production in January.

STOCKS DECLINE FURTHER.

Our monthly blast furnace statistics submitted below show that the production of pig iron of all kinds in January reached a production of over 1,450,000 gross tons, and yet, in spite of the fact, the stocks in the hands of merchant furnaces declined over 58,000 tons. This is an extraordinary record.

The weekly capacity of the furnaces in blast on February 1 compares as follows with that of the preceding periods:

	Total capacity per week. Gross tons.	Coke capacity per week.	Charcoal capacity per week.
February 1, 1902	340,612	334,007	6,605
January 1	298,460	291,992	6,468
December 1, 1901	324,761	317,358	7,403
November 1	320,824	313,775	7,049
October 1	307,982	300,538	7,444
September 1	299,861	293,256	6,605
August 1	303,847	297,269	6,578
July 1	310,950	303,793	7,157
June 1	314,505	306,991	7,514
May 1	301,125	293,915	7,210
April 1	296,676	288,766	7,910
March 1	292,899	284,825	8,074
February 1	278,258	278,258	8,335
January 1	250,351	243,254	7,097
December 1, 1900	228,846	222,067	6,779
November 1	215,304	207,381	7,923
October 1	223,169	214,921	8,248
September 1	231,778	223,551	8,227
August 1	244,426	236,131	8,295
July 1	283,413	274,921	8,492
June 1	296,376	288,771	7,605
May 1	293,850	286,956	6,894
April 1	289,482	281,644	7,838
March 1	292,643	285,596	7,047
February 1	298,014	290,010	8,004
January 1	294,186	286,729	7,457
December 1, 1899	296,959	284,448	7,511

Monthly Production of Anthracite and Coke Pig Iron.—Gross Tons.

	November.	December.	January, 1902.
New York	25,910	32,002	31,357
New Jersey	17,882	17,737	16,144
Schuylkill Valley	42,281	38,621	35,618
Lehigh Valley	41,444	41,183	50,164
Upper and Lower Susquehanna and Lebanon	65,784	57,597	57,611
Pittsburgh	343,878	284,052	357,326
Shenango Valley	92,875	81,457	108,513
Western Pennsylvania	74,102	75,833	85,151
Maryland, Virginia and Kentucky	68,858	57,058	68,340
Wheeling district	58,573	46,822	59,807
Central and Northern Ohio	96,373	87,878	81,663
Mahoning Valley	108,342	128,056	142,067
Hanging Rock and Hocking Valley	29,669	30,341	32,463
Illinois, Wisconsin, Missouri and Colorado	170,332	155,266	160,386
Alabama	97,647	104,379	110,103
Tennessee	28,001	27,903	30,960
Totals	1,361,951	1,266,185	1,427,673

The condition of the coke and anthracite furnaces at the beginning of the month was as follows:

Coke and Anthracite Furnaces February 1, 1902.

Location of furnaces.	Total No. of stacks.	Number in blast.	Capacity per week.
New York	14	6	7,087
New Jersey	6	3	3,645
Spiegel	3	3	521
Pennsylvania:			
Lehigh Valley	27	18	11,536
Spiegel	1	1	112
Schuylkill Valley	15	11	8,355
Upper Susquehanna	1	..	....
Lower Susquehanna	10	6	5,718
Lebanon Valley	12	10	6,954
Pittsburgh District	33	31	88,903
Spiegel	1	1	350
Shenango Valley	18	16	22,696
Western Pennsylvania	23	15	19,228
Maryland	5	3	5,800
Wheeling District	10	8	13,200
Ohio:			
Mahoning Valley	15	15	32,811
Central and Northern	13	11	18,440
Hocking Valley	3	2	800
Hanging Rock	12	10	6,540
Illinois	19	16	31,845
Minnesota	1	..	....
Wisconsin	5	4	4,208
Missouri	2	..	....
Colorado	3	2	2,750
The South:			
Virginia	20	15	8,744
Kentucky	5	4	1,911
Alabama	41	25	24,862
Tennessee	16	11	6,991
Georgia	1	..	....
North Carolina	1	..	....
Totals	335	257	334,007

There were blown in during January, Crumwold Furnace in the Lehigh Valley, one Carrie and on Monongahela in Pittsburgh, Lebanon Valley, two South Chicago, one Union, one new Iroquois, two Bay View, one Mayville in the Northwest, and Anna in the Mahoning Valley. There were blown out one Colebrook and one Paxton in Central Pennsylvania, Top Mill Furnace in Wheeling, one Lorain, one South Chicago and one Lady Ensley.

The condition of the charcoal furnaces at the beginning of the month was as follows:

Charcoal Furnaces February 1, 1902.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.
New England	7	3	180
New York	3	1	622
Pennsylvania	13	1	54
Maryland	2	..	....
Virginia	3	1	54
Ohio	9	2	112
Kentucky	3	..	....
Tennessee	3	1	82
Georgia	4	1	430
Alabama	4	3	682
Michigan, Missouri and Wisconsin	10	7	4,197
Washington	1	1	92
Texas	4	1	100
Totals	66	22	6,605

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as below on February 1, as compared with the five preceding months, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

Stocks.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.
Anthracite and Coke	318,069	299,824	223,089	181,021	179,993	121,762
Charcoal	62,005	61,769	50,162	42,441	38,091	32,438
Totals	380,074	361,593	273,251	223,462	218,084	154,200

The Patent, Title & Guarantee Company, Incorporated, of New York and Washington, are developing a plan to lessen the existing evils of patent litigation. They propose, in consideration of the payment of 2 per cent. per annum of the amount of protection applied for, to protect their clients against infringement, employing to this end every legitimate means that ingenuity can suggest and money obtain; to conduct at their own expense all suits necessary to establish their clients' legal rights; and in case of loss by infringement to pay to their clients damages in such amounts as may be determined by the United States Courts, to the full limit of the guarantee furnished, and 90 per cent. of all damages collected in excess of that limit, reserving the remaining 10 per cent. to indemnify themselves for the cost of litigation. The minimum contract is for $2500.

President Shaffer of the Amalgamated Association is credited with the statement that at the annual convention of the association, to be held in Wheeling, W. Va., in April, a movement will be inaugurated looking to the abolition of the present mill committees, salaried district presidents being elected whose duty it will be to settle all disputes within their districts.

The Wheeling Roofing & Cornice Company of Wheeling, W. Va., are erecting a new plant at New Martins-

ville, in that State, for the manufacture of corrugated sheets, ceilings and conductor pipe, eave trough, ridge roll, &c., also a tinning plant of six sets and a galvanizing department. This plant will be operated by the company in addition to their works in Wheeling.

OBITUARY.

NOTES.

ANDREW A. OBENDORFER of Youngstown, Ohio, died suddenly at his residence in that city last week. Mr. Obendorfer was one of the founders and also a director in the Youngstown Foundry & Machine Company of Youngstown.

MAJOR ELY ENSIGN, manager of the American Car & Foundry Company's plant at Huntington, W. Va., died suddenly on January 28 at his home in Huntington, aged 61 years. Major Ensign was for 30 years the head of the Ensign Car Works.

JOSEPH CANDOR, a well-known hardware merchant of Lock Haven, Pa., died on the 4th inst. Mr. Candor was born at Chilisquaque, Northumberland County, February 22, 1834. He became identified with his brother's hardware business in 1868 and in 1883 became sole proprietor.

WILLIAM F. HERRE, buyer and stockholder of Morley Bros., Saginaw, Mich., died suddenly on the 30th inst., in the forty-fifth year of his age. Mr. Herre had been in the employ of Morley Bros. for many years.

JAMES MILLIKEN, for many years prominent in the iron manufacturing business in New York and Philadelphia, died on February 3 at the Hoffman House, New York, aged 78 years. Mr. Milliken was born at Milroy, Mifflin County, Pa. Before he was of age he was intrusted by Messrs. Valentine with the agency for the sale of their iron in the State of New York, and was located for that purpose at Elmira for several years. He removed to Philadelphia in 1851 and engaged in the flour and grain business, but after a few years he entered upon the manufacture of iron. He was associated for a number of years with the firm of Reeves, Buck & Co., who became the Phœnix Iron Company of Philadelphia. At the close of the Civil War he retired from business, and had since largely devoted himself to study and travel.

DANIEL W. BAKER, JR., head of the firm of Baker & Co., platinum refiners and metal smelters, of Newark, N. J., was struck by a trolley car in that city and killed on February 8, at the age of 40 years.

J. P. CHRISTIAN, general superintendent of the Shelby Iron Company of Shelby, Ala., died on February 1, aged 56 years. Mr. Christian was born at Milledgeville, Ga., and had been connected with the Shelby Iron Company for the past 36 years. He was regarded as an authority in the manufacture of iron throughout the South.

New Publications.

VELOCITY DIAGRAMS. By Chas. W. MacCord. Publishers, John Wiley & Sons, New York. Price, $1.50.

This treatise, as the preface tell us, is in effect an abstract of a series of lectures forming a part of the course of instruction at the Stevens Institute of Technology. The book is written by the Professor of Mechanical Drawing in that college. It deals with mechanical motions, and explains the principles of the graphic method of determining at any given instant the direction and velocity of the motion of a point.

The contents are summarized as, explanation of the elementary principles involved, application of these in determining the motion of a given point in numerous mechanical movements, the construction of velocity space, velocity time, angular velocity and velocity ratio diagrams and their use in comparing different movements and the determination of acceleration by a process of graphic differentiation. The whole is intended for use by students, both those in the class room and those who wish to study the subject without the aid of an instructor.

The diagrams are numerous, and, as far as possible, have been placed upon the pages where most of the letter press concerning them is to be found; they are clear and accurate, but in many instances we think it would have helped the student if the principal components, such as the "line A B," or the "point P," had been designated by letters in heavier type than that used. There is always a certain amount of inconvenience in glancing from letter press to diagram, and *vice versa*, which might have been minimized by giving the eye a few readily found letters, upon which to fasten at each successive glance.

Many interesting mechanical motions are discussed, among which may be mentioned "Pilgrim step" motion, simultaneous dead points in link work and a variety of "slow advance and quick return" motions, obtained by the use of crank and slotted arm, drag crank, elliptical wheels, links and levers and Whitworth's motion, all of which are used in the construction of machine tools.

SMOLEY'S TABLES. By Constantine Smoley, C. E. Publishers, the Engineering News Publishing Company, New York. Price, $3.

This book of tables is intended for the use of draftsmen, architects and engineers. It contains parallel columns of logarithms and squares of all lengths of feet, inches and fractions of inches expressed in decimals of a foot from zero to 50 feet. The advance is by thirty-seconds of an inch. For example, the distance, 12 feet 3 13-32 inches, has been reduced by the author to feet plus the corresponding decimal of a foot. The logarithm of the number so obtained is placed in the table, and beside it the ordinary square of the number is set down. The distinctive feature of the tables is the logarithms of distances in feet and inches.

A rather ingenious method of numbering the pages, which perhaps only the constant user will learn to appreciate, has been adopted. At the head of each page the whole number of feet is placed, in the center, in heavy type. Each page contains tables for 3 inches, in parallel columns, advancing by thirty-seconds. It is manifest, therefore, that the tables required for each foot will occupy four pages. Page 14a contains tables for 14 feet plus all the thirty-seconds up to 14 feet 3 inches. Page 14b begins with 14 feet 3 inches, and runs to 14 feet 6 inches; 14c takes in 7, 8 and 9 inches respectively, and 14d covers the remaining inches, though this latter is the sixtieth page of the book. The small letters thus represent the quarters of each foot.

Following these special tables are the ordinary logarithms from 0 to 1000. A page is devoted to the constants frequently used in computations, and the last pages are devoted to explanations and examples. The book contains 212 pages, it is printed on fine linen paper and is bound in a flexible leather cover.

Drop Hammers.—The Billings & Spencer Company of Hartford, Conn., have prepared a most attractive catalogue of their drop hammers. These hammers embody the latest improvements made by a company having an experience of over 30 years in the drop forging business. They have thus had an opportunity of practically testing new designs and of adopting only such as were found to fully meet the requirements. By careful experiments the company have demonstrated that increased weight of the anvil or base of a drop hammer gives increased efficiency to the machine; that, given two drop hammers, with the hammers proper weighing the same and falling the same distance, and the anvil of one hammer weighing, say, twice as much as the others, the machine with the heavy anvil will do nearly twice as much work in one blow as the machine with the light base. From the results of such experiments they have adopted as the minimum weight of anvil or base of their drop hammers the ratio of 15 to 1, or the weight of the base 15 times that of the hammer proper. They have also found that it is of advantage to erect the machines on solid concrete foundations, as such foundations still further increase the efficiency by providing additional resistance to the blow of the hammer.

The Iron and Metal Trades.

The enormous current consumption of Pig Iron is fully reflected in the monthly statistics which we publish elsewhere. In January the United States produced, according to almost complete returns, 1,427,673 gross tons of anthracite and charcoal Pig Iron, to which must be added about 29,000 tons of charcoal Pig, so that an output of over 1,450,000 tons in one month of 31 days was attained. In spite of this the stocks held by others than furnaces serving Steel plants declined from 180,000 tons on January 1, to 122,000 tons on February 1. In other words, there were melted in the United States during January over 1,500,000 tons of Pig, which would be at the rate of 18,000,000 tons a year.

Our estimate is that we entered February with furnaces blowing which could make 340,000 tons a week of all grades, which is apparently inadequate if there is no hitch anywhere in the whole chain of industries, and even if a few old stacks and a limited number of new furnaces are put to work.

Unfortunately we are not to be free from disturbances to production. The storms have again thrown the whole transportation system in important sections into disorder, and a number of furnaces have been forced again to resort to banking. It is very doubtful under the circumstances whether the large output for February which its first day held forth will be realized. It is needed, every pound of it.

There has been a very active demand for Pig Iron throughout the country, some large blocks, notably of Malleable Iron, having been sold in Chicago. There have been further purchases of Basic Pig for the Central West, where little beyond the second quarter has been covered thus far. There has been some talk of importing Basic Pig, but the prices prevailing abroad seem to hold out little chance of securing the right kind of Iron at competitive prices.

The Steel scarcity is becoming more acute, and buyers are turning more and more to foreign sources for relief. While inquiries have been numerous and partly urgent, and on the whole thus far quite a tonnage has been placed, still recently sales have been confined to small lots of 500 to 2000 tons each. One of the Canadian Steel works has withdrawn from the market.

It is feared that the scarcity of Steel will have its effect upon some of the Finished products, for instance, on Sheets, the capacity to turn out Sheet Bars being limited. Whether the slackness in some other lines may afford some relief remains to be seen.

The supply of Structural Material is altogether inadequate, and deliveries are becoming more and more unsatisfactory. There has been some talk of importing foreign Beams and Angles, but we have not heard of any recent business in this direction.

It is reported that a Southern railroad being unable to obtain the desired deliveries of Steel Rails from domestic mills, has purchased between 25,000 and 30,000 tons abroad, paying about $25 at Pensacola, to which the duty must be added. We understand that some Pacific Coast business is also pending.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type Declines in Italics.

	Feb. 12, 1902.	Feb. 5, 1902.	Jan. 15, 1902.	Feb. 13, 1901.
PIG IRON:				
Foundry Pig No. 2, Standard Philadelphia	**$17.25**	$17.00	$16.75	$15.25
Foundry Pig No. 2, Southern Cincinnati	14.75	14.75	14.75	12.75
Foundry Pig No. 2, Local Chicago	16.00	16.00	16.00	14.50
Bessemer Pig, Pittsburgh	**16.75**	16.75	16.50	14.00
Gray Forge, Pittsburgh	16.25	16.00	16.25	13.15
Lake Superior Charcoal, Chicago	**20.00**	20.00	19.50	17.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	**29.00**	28.50	27.50	19.75
Steel Billets, Philadelphia	**32.00**	29.50	....	21.00
Steel Billets, Chicago	....	....	....	20.75
Wire Rods, Pittsburgh	**35.00**	35.00	33.50	35.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	26.00
Spikes, Tidewater	2.00	2.00	2.00	1.50
Splice Bars, Tidewater	1.60	1.60	1.65	1.30
OLD MATERIAL:				
O. Steel Rails, Chicago	**15.00**	15.00	14.75	12.00
O. Steel Rails, Philadelphia	**19.00**	19.00	18.25	15.50
O. Iron Rails, Chicago	**22.00**	22.00	21.00	18.00
O. Iron Rails, Philadelphia	21.00	21.00	21.50	18.50
O. Car Wheels, Chicago	**16.50**	16.50	16.00	16.50
O. Car Wheels, Philadelphia	17.00	17.00	17.00	17.00
Heavy Steel Scrap, Chicago	**14.00**	14.00	13.50	12.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.67	1.67	....	1.35
Common Iron Bars, Chicago	**1.75**	1.75	1.65	1.45
Common Iron Bars, Pittsburgh	**1.60**	1.60	1.50	1.30
Steel Bars, Tidewater	1.62	1.62	....	1.35
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.25
Tank Plates, Tidewater	1.78	1.78	1.78	1.55
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.40
Beams, Tidewater	1.75	1.75	1.75	1.63
Beams, Pittsburgh	1.60	1.60	1.60	1.50
Angles, Tidewater	1.75	1.75	1.75	1.53
Angles, Pittsburgh	1.60	1.60	1.60	1.40
Skelp, Grooved Iron, Pittsburgh	1.75	1.75	1.75	1.45
Skelp, Sheared Iron, Pittsburgh	1.80	1.80	1.75	1.50
Sheets, No. 27, Pittsburgh	**3.00**	3.00	2.90	2.85
Barb Wire, f.o.b. Pittsburgh	2.90	2.90	2.90	2.90
Wire Nails, f.o.b. Pittsburgh	**2.05**	2.05	2.00	2.30
Cut Nails, Mill	*1.95*	1.95	2.05	2.05
METALS:				
Copper, New York	**12.75**	12.50	11.00	17.00
Spelter, St. Louis	3.87½	3.90	4.12½	3.75
Lead, New York	**4.10**	4.10	4.00	4.37½
Lead, St. Louis	**4.03**	4.10	3.90	4.17½
Tin, New York	**24.55**	24.25	23.75	26.45
Antimony, Hallett, New York	8.00	8.00	8.00	9.25
Nickel, New York	50.00	50.00	50.00	55.00
Tin Plate, Domestic, Bessemer 100 pounds, New York	4.19	4.19	4.19	4.19

Chicago.

FISHER BUILDING, February 11, 1902.—(*By Telegraph.*)

Conditions are becoming very unpleasant for sales agents, who are besieged by consumers desiring impossible deliveries or complaining because shipments are not made fast enough. The Coke supply is again a troublesome question, as various causes are interfering with shipments. The supply of cars is supposed to have improved, but great difficulty is still encountered in arranging for satisfactory delivery on this account. The market is so strong and manufacturers are now falling so far behind in filling their orders that they are pleased when a consumer asks for prices and says he will wait until lower rates are named.

Pig Iron.—The supply is exceedingly short for the first half of the year. The pressure is strong, not only for more Iron for shipment in the spring months, but also for more rapid delivery on contracts. An advance of 50c. to $1 per ton can easily be obtained on any Iron which can be delivered prior to July. Transactions have again been heavy. Among those closed the past week was a contract for about 15,000 tons of Northern Iron, to be delivered through the remainder of the year. A purchase of 10,000 tons of Forge Iron was made, which was divided among several parties at a stiff advance on former prices. More sales of Basic Iron have been made

since last report. A continued demand for Charcoal Iron for malleable purposes is noted. We quote as follows:

Lake Superior Charcoal	$20.00 to $21.00
Local Coke Foundry, No. 1	16.50 to 17.00
Local Coke Foundry, No. 2	16.00 to 16.50
Local Coke Foundry, No. 3	15.50 to 16.00
Local Scotch, No. 1	16.50 to 17.00
Ohio Strong Softeners, No. 1	19.50 to 20.00
Southern Silvery, according to Silicon	16.90 to 17.15
Southern Coke, No. 1	16.40 to 16.65
Southern Coke, No. 2	15.65 to 15.90
Southern Coke, No. 3	15.15 to 15.40
Southern Coke, No. 1 Soft	16.40 to 16.65
Southern Coke, No. 2 Soft	15.65 to 15.90
Foundry Forge	14.65 to 15.15
Southern Gray Forge	14.65 to 15.15
Southern Mottled	14.15 to 14.65
Southern Charcoal Softeners, according to Silicon	15.50 to 16.50
Tennessee Silicon Pig	17.15 to 17.65
Alabama and Georgia Car Wheel	20.65 to 21.65
Malleable Bessemer	17.00 to 18.50
Standard Bessemer	18.25 to 20.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	18.50 to 19.00

Bars.—Trade is very active, so much so that the largest manufacturers report that they are turning down more business than they are able to book. Manufacturers are so well supplied with work that they prefer not to take any further business, as the tendency of raw materials to advance is making them feel apprehensive of the future. Unless a change occurs prices will have to be advanced for this reason, if for no other. Mill shipments of Common Iron are quoted at 1.75c. to 1.80c.; Soft Steel Bars at 1.65c. to 1.80c., and Hoops at 2.10c. to 2.20c. Jobbers find no cessation in the strong demand, which continues to keep their stocks very badly broken. Small lots are quoted at 1.90c. to 2c. for Bars and 2.40c. to 2.50c. for Hoops.

Structural Material.—A great deal of business has been placed for material for buildings, bridges and for general manufacturing purposes. Among the contracts during the week was the Butler warehouse, taking 3500 tons, as well as numerous smaller orders running from 1500 tons down. A very good demand is noted for Universal Plates. The Structural mills are in such condition that they are not tempted by the choicest orders to make an exception to their rule of booking orders in regular rotation. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c. to 1.90c.; 18 inches and over, 1.85c. to 2c.; Angles, 1.75c. to 1.90c. rates; Tees, 1.80c. to 1.90c.; Universal Plates, 1.75c. to 1.85c.; small lots of Beams and Channels from local yards are quoted at 2.25c.; Angles, 2c. rates; Tees, 2.05.

Plates.—Some nice tonnage has been placed, and the local mills are now quite well fixed for a steady run. The demand from stock is fair, but not specially active. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.80c., Chicago; Flange, 1.85c. to 1.95c.; Marine, 1.95c. to 2.05c. Jobbers are selling small lots from store at 1.90c. to 2c. for Tank and 2.25c. for Flange, with the usual extras for heads, segments, lighter gauges, &c.

Sheets.—The mills are far behind in filling orders. The best delivery now named is 60 days. Quite a good demand is noted for both Black and Galvanized Sheets. Mill shipments of No. 27 Black Sheets are quoted at 3.05c to 3.15c., Chicago, and Galvanized at 70, 10 and 5. Small lots of Black Sheets are selling at 3.35c. to 3.45c. Galvanized Sheets are the subject of continued sharp competition among jobbers, with the usual price, 70 and 5.

Merchant Pipe.—Conditions are practically unchanged. Spring trade has not begun and the movement is therefore only fair. Independent mills are in some instances naming lower prices, but this has not affected the schedule made by the large manufacturers. Carload lots are now quoted as follows, random lengths: Black, ⅛ to ½ inch, 60 off; ¾ to 10 inches, 67 off; Galvanized, ⅛ to ½ inch, 47 off; ¾ to 6 inches, 55 off.

Boiler Tubes.—No change has been made in prices, and the demand is considered excellent for the season. Quotations are as follows:

	Steel.	Iron.
2¼ to 3 inches	57½	47½
1¾ to 2¼ inches	50	40
1 to 1½ inches	35	30
6 inches and larger	52½	45

Cast Pipe.—Business is running mostly to small lots, with nothing of special interest to report. Quotations on Water Pipe, Chicago, are as follows: Eight-inch and upward, $26 to $27; 6-inch, $26.50 to $28; 4-inch, $27.50 to $29.

Merchant Steel.—One of the largest manufacturers shipping into this territory reports January shipments the largest in tonnage in their history, although the past three Januarys were very heavy. The pressure is strong for more rapid shipments on contracts. New business is fair. Cold Rolled Shafting has been advanced 5 per cent. Mill shipments, Chicago, are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.90c. to 2c.; Open Hearth Spring Steel, 2.30c. to 2.40c.; Toe Calk, 2.20c. to 2.35c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off in carload lots. Ordinary grades of Crucible Tool Steel are quoted 6½c. to 7c. for mill shipments; specials, 12c. upward.

Rails and Track Supplies.—No new business is reported in Standard Sections, but Light Rails are in strong demand and orders are being steadily booked. Heavy Sections are quoted at $28 and Light Sections at $32 to $36. Fastenings are quoted as follows: Splice Bars, 1.70c. to 1.80c.; Spikes, 2c. to 2.10c.; Track Bolts, with Hexagon Nuts, 2.90c. to 2.95c.; Square Nuts, 2.75c. to 2.80c.

Billets.—It is stated that Open Hearth Forging Billets cannot be had now for earlier than August delivery, on which $34 is quoted. Bessemer Billets are the subject of inquiry, but none are to be had.

Old Material.—Dealers are paying high prices, but the mills are trying to secure material at their own figures and therefore business in rolling mill stock is quiet. Railroads are holding their Old Material at high rates. Old Steel Rails have advanced to such a point that mill owners who reroll them into merchant shapes are threatening to close their mills. The following are approximate quotations per gross ton:

Old Iron Rails	$22.00 to $22.50
Old Steel Rails, mixed lengths	15.00 to 15.25
Old Steel Rails, long lengths	22.00 to 23.00
Heavy Relaying Rails	27.00 to 28.00
Old Car Wheels	16.50 to 17.00
Heavy Melting Steel Scrap	14.00 to 14.50
Mixed Steel	11.50 to 12.00

The following quotations are per net ton:

Iron Fish Plates	$17.00 to $17.50
Iron Car Axles	22.00 to 22.50
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	16.25 to 16.75
No. 2 Railroad Wrought	14.00 to 14.50
Shafting	16.00 to 16.50
No. 1 Dealers' Forge	13.50 to 14.00
No. 1 Busheling and Wrought Pipe	11.50 to 12.00
Iron Axle Turnings	12.25 to 12.50
Soft Steel Axle Turnings	10.75 to 11.25
Machine Shop Turnings	11.25 to 11.75
Cast Borings	6.00 to 6.25
Mixed Borings, &c	5.75 to 6.00
No. 1 Boilers, cut	11.00 to 11.50
No. 2 Boilers, cut	10.00 to 10.50
Heavy Cast Scrap	12.00 to 12.50
Stove Plate and Light Cast Scrap	9.00 to 9.50
Railroad Malleable	13.25 to 13.50
Agricultural Malleable	11.75 to 12.25

Metals.—Copper is quiet, as the large buyers pretty thoroughly covered their requirements when prices began to advance. Lake Copper is quoted in carload lots at 13c., and Casting Brands at 12¾c. Pig Lead is unchanged at 4.05c. for Desilverized and 4.15c. for Corroding in 50-ton lots. A somewhat better demand is noted for Pig Lead. Selling prices of small lots of Old Metals are as follows: Heavy Cut Copper, 12c. to 12½c.; Copper Bottoms, 11c.; Pipe Lead, 3.75c.; Zinc, 3c.

Coke.—The supply has again been interfered with by storms and shortage of cars. Connellsville Coke is especially difficult to secure. Furnaces are by no means rid of their troubles, and foundrymen find themselves frequently short of fuel. Spot Coke of any kind easily brings $5.50, and strictly Standard 72-hour Connellsville Coke is quoted at $5.25 for future delivery.

The Crucible Steel Company of America have let the contract for a bridge to span the Monongahela River and connect the company's works at Clairton with the Pennsylvania and the Pittsburgh & Lake Erie railroads, and possibly the Baltimore & Ohio. The bridge will cost $600,000. At Clairton the company are building furnaces and a 1200-ton a day open hearth steel plant.

Philadelphia.

FORREST BUILDING, February 10, 1902.

The dominating feature of the trade continues to be the shortage of Pig Iron. It is not a case of here and there shortage so far as concerns this territory, but it is as near universal as can be without its being absolute. Compared with last week, and with several immediately preceding, the situation is worse, and at the moment it is extremely difficult to find any good reason for supposing that substantial relief is anywhere within sight. Everything is taken up for the first half of the year, and while there is always a small margin left for the casual trade, yet when there is such scarcity as there is at the present time every one feels that if they are to be protected they must ask for more than they really need, so they may be in a position to stand a moderate discount. The need is very great, however, and even with the utmost forbearance it is a difficult matter to get enough to go round. Ordinarily the situation might be regarded with equanimity, but when stocks in buyers' yards and on furnace banks are practically exhausted there is no margin left for further interruptions. The weather is an uncertain factor at this season of the year, so that a very slight interruption of the transportation service makes itself felt at once. The trade are hoping for easier conditions, but they cannot help feeling unsettled and nervous until the margin of security is a good deal stronger than it is to-day. The situation in the more advanced products is not as strenuous, except in Structural Material, which is assuming a serious aspect. Work at the shipyards and among other consumers of structural shapes is greatly retarded for want of material, and for the time being there is absolutely no prospect for anything like substantial relief. In a lesser degree similar conditions are met with in other departments, so that it is unnecessary to say that business is in good condition, as it is too good for either comfort or convenience.

Pig Iron.—Never in the history of the trade has there been such conditions as prevail to-day. Everything appears to be so closely taken up that there is practically no Iron for sale, although, of course, it can be had by a little skirmishing around and paying a price subject to a private arrangement. Open prices are discarded for the present; the point is to find the material and arrange for it on such terms as may be agreed upon, depending almost entirely on the time for delivery. February shipments of No. 2 X have been sold as high as $18, and some large lots for deliveries extending through the summer months have been done at $17.25 to $17.50, which is probably as near to the market as can be given, although very little attention is given to quotations unless backed up with an offer to deliver the goods. To-day $18 was quoted for Open Gray Forge, and it would be just a chance to get anything for less money. These remarks apply to all grades of Iron, the probable range at this time for Philadelphia and nearby points being about as follows: No. 1 X Foundry, $18.25 to $18.50; No. 2 X Foundry, $17 to $18; No. 2 Plain, $16.50 to $17; Standard Gray Forge, $16.75 to $18; Ordinary Gray Forge, $15.75 to $16.25; Basic (Chilled), $17 to $17.50; Bessemer, $20 to $20.50.

Billets.—Quotations to-day are about $32, but it is difficult to secure lots of any magnitude for prompt shipment. Foreign Steel is nominal at $28.50 to $29, but it is doubtful if shipments could be made with any satisfactory degree of promptness.

Plates.—The mills are all full of work, with good prospects of permanent activity. Nothing important has been placed during the past week, but manufacturers are glad to have a brief interval to complete orders, which for various reasons have been more or less delayed. The pressure for deliveries would be more urgent if structural material could be had promptly, but as it is impossible to get normal supplies the consumption of Plates is in consequence somewhat retarded. Prices for Philadelphia and nearby deliveries are as follows: Universals, 1.75c. to 1.80c.; Sheared, 1.75c. to 1.80c.; Flange, 1.85c. to 1.95c.; Fire Box, 1.95c. to 2.05c.; Marine, 1.95c. to 2.05c.

Structural Material.—The shortage appears to be more stringent than ever, and it is impossible to get out work as required. Prices are nominally unchanged, but several dollars per ton premium has to be paid to secure anything like prompt deliveries. Prospects for easier conditions are not within sight at present. The following are the official quotations for seaboard or nearby deliveries: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

Bars.—A great deal of business has been placed recently, and some of the mills are disposed to turn down orders on the ground that they have all the business they can manage for some time to come. Prices are strong and look like going higher in the near future. Prices are about as follows: Iron Bars, 1.67c. to 1.72c., delivered; Steel, 1.62c. to 1.67c.

Sheets.—The demand has become very active, and orders that have been held in abeyance are coming forward in large volume. Prices, as in other lines, are very much unsettled, but for carload lots and upward of ordinary Sheets, quotations would be about as follows, and 1-10c. to 2-10c. more for best qualities—viz.: No. 10, 2.30c. to 2.40c.; No. 14, 2.60c.; Nos. 16 and 17, 3c.; Nos. 18-21, 3.10c.; Nos. 26, 27, 3.30c. to 3.40c.; No. 28, 3.50c.

Old Material.—It is hardly possible to quote prices with much definiteness, as everything is in a state of confusion, owing to the difficulty in getting Pig Iron and other material. The range of bids and offers would be about as follows for deliveries in buyers' yards: Low Phosphorus Scrap, $22 to $24; Choice Railroad Scrap, $21 to $21.50; Light (Ordinary), $13 to $14; Light (Forge), $15 to $16; Machinery Cast, $14.75 to $15.25; Heavy Steel, $19.25 to $19.50; Old Steel Rails (short lengths), $19 to $19.25; Old Iron Rails, $21 to $22; Wrought Turnings, $13.50 to $14; Choice Heavy, $14 to $15; Cast Borings, $8 to $8.50; Old Car Wheels, $17 to $17.50; Iron Axles, $24.50 to $25.50.

Cleveland.

CLEVELAND, OHIO, February 10, 1902.

Iron Ore.—It now seems quite evident that the season's rate of carriage for Iron Ore will be determined inside of the week and that most of the tonnage that will engage in the contract trade will be chartered. The vesselmen and the shippers were in conference all day Saturday trying to come to some understanding concerning the rate, but it was impossible to reach an agreement, as far as known. There is a report, however, which so far is unconfirmed, that 500,000 tons of Ore have been covered at 80c. between Duluth and Ohio. This being the case, the big shippers express their willingness to abide by that rate. If the charter was made it most likely came from some of the smaller companies, as the big shippers announce positively that they have done nothing so far. Whatever may have been done to date, there are plenty of indications that the rate the coming season will not differ radically from that of the past year. The shippers have offered 75c. between Duluth and Ohio very freely, but the vessel owners have not accepted it. They have deserted the $1 rate, however, and are not even clinging very strongly to the 90c. rate, but are seemingly willing to take 80c. or 85c. rather than accept the lower figure. One thing is apparent, which is that many boats will run "wild" this summer rather than take contracts, and the shippers will likewise depend much upon the open market for tonnage with which to move their material. It is now estimated that one-half of the boat capacity and of the Ore will be tied up in contracts, the others taking what the market may afford from time to time. This is in part due to the results of last year and in part to the belief that the present is an ill time to make season's rates, especially for the vessel owners, since indications are not sufficiently developed to warrant closing up all of the business.

Pig Iron.—The Pig Iron situation this week has been complicated by a change of method of four furnaces.

They have been taken off of the production of Foundry Iron, or soon will be, and have been started to producing Bessemer. Two of the furnaces in the Valley have been sold, another Valley furnace has been leased, and one Cleveland furnace will change over to Bessemer because the owners of it have taken a large Bessemer contract. The reduction of the production by the output of four furnaces and the absence of any additions, with an increased demand, does not promise very well for the future of the Foundry grades here. It is reported in Iron circles that there is hardly a car of Foundry Iron remaining upon the market for sale during the remainder of the first half of the year. There is even a limited quantity for disposition during the third quarter. The past week sales of Foundry grades have been made in large quantities, requiring deliveries during the entire second half of the year. The prices have not changed from $16.50 and $16 in the Valley for Nos. 1 and 2 respectively. The sale of Bessemer Iron has been confined entirely to carload lots, and even these have not been in any degree numerous. Most of the material for quick shipment or, in fact, for the entire first half, has been sold up and there are few who need Iron now. The buying for the third quarter has not started and is not expected for some time. At present the quotations remain at $16, Valley furnace, for Bessemer. Basic Iron is not being sold in very large quantities now, although some of the stacks are taking orders steadily. A good part of the material available for the remainder of the first half has been sold at $16 in the Valleys. Recent reports from the railroads are that the Coke supply is getting short again and that it may be expected to be even less than it now is. So far the supply has not been so scant as to cause any of the furnaces to bank their fires, but no one cares to predict that such will not be the case.

Finished Material.—There is still a steady demand for all grades of Finished Material, the market showing up strong upon all sides. This especially obtains in the Structural Steel Trade. The mills are not promising deliveries now much inside of five months at the best, and the orders, seemingly, have but started to come in. There is a great deal of buying out of store at this time, with the prices about as they have been. Mill sales are made at the same old figure of 1.70c., but sales out of store vary in price greatly, the minimum being 2.25c, which price prevails on the original lengths mostly. The Plate trade is also picking up a great deal and the inquiries are now heavier than they have been in weeks. The product available for sale has been sold up, until the best the mills are offering on deliveries is two months. The demand for Sheared Plate is one of the satisfactory parts of the market at this time. The market is strong at 1.70c. But few sales of Rails are being made. What there is of the business is in cleaning up lots, ranging a carload or 100 tons or such a matter, being the piecing out orders of the companies who have not quite covered all of their needs. Plans are now being made to ship on specification, as many of the roads will begin their improvement work with the first break up of the cold weather. The demand for Sheets is about as it has been. Orders are coming in very satisfactorily and the trade appears to be very brisk. The supply in store is equal to the present demand, but the ordering now promises to deplete some of the stocks before very long. The quotations continue at 3.35c. to 3.50c. out of store for One-Pass Cold Rolled, with 10c. extra for Full Cold Rolled. There is a steady call for Billets, but without any material of which to make disposition. The mills have no excess over their own actual needs, and some of the smaller buyers are forced to look elsewhere for their material. The transactions have not been heavy enough to warrant a quotation.

Old Material.—The Scrap trade during the week has been running along on an even keel. The buying has been steady and healthy, but the prices have not changed in the least. The market is represented by the following quotations: No. 1 Wrought, $16 net; Cast Borings, $8 gross; Wrought Turnings, $12.25 gross; Cast Scrap, $13 net; Stove Plate, $10 net; Heavy Steel, $17 gross; Old Iron Rails, $22 gross; Old Iron Axles, $22 gross; Steel Rails, $17 gross; Old Car Wheels, $17 gross.

St. Louis.

CHEMICAL BUILDING, February 11, 1902.—(*By Telegraph.*)

Pig Iron.—Since our last report a very large volume of business has been transacted in the market for Pig Iron, and owing to the scarcity prices are inclined to show a hardening tendency. Iron is at a premium for quick delivery, and even when extra inducements in the way of prices are offered it is difficult to secure material. Owing to the heavy demand for Car Wheel Iron prices for this grade have been advanced by some of the furnaces. The call is for all grades and the sales are well distributed through the list. We quote as follows for cash, f.o.b. St. Louis:

Southern, No. 1 Foundry	$15.75 to $16.00
Southern, No. 2 Foundry	15.25 to 15.50
Southern, No. 3 Foundry	14.75 to 15.00
Southern, No. 4 Foundry	14.25 to 14.50
No. 1 Soft	15.75 to 16.00
No. 2 Soft	15.25 to 15.50
Gray Forge	14.25 to 14.50

Bars.—The mills, it is said, are still unable to keep pace with the active and strong demand for Iron and Steel Bars. Jobbers report conditions as being very active and firm, and it is with difficulty that they are able to secure their full quota of material to fill the requirements of their customers' demands. We quote, from mill, Iron Bars at 1.80c.; Steel Bars at 1.80c. to 2c. Jobbers quote Iron Bars at 2c. and Steel Bars at 2.10c., full extras.

Rails and Track Supplies.—The unusually strong conditions reported in this department of the market continue, and no material change is likely to be in evidence for months to come. The mills are in such a condition that orders for new business are very hard to care for and are often turned down when quick delivery is one of the requirements. An active and strong market prevails for Track Supplies and prices are without change. We quote: Splice Bars, 1.75c to 1.95c.; Bolts, with Square Nuts, 2.75c. to 2.90c.; with Hexagon Nuts, 2.90c. to 2.95c.; Spikes, 2c. to 2½c.

Small Angles and Channels.—The jobbers say these are in very strong demand, and for materials of this class 2.30c., base, is the quotation.

Sheets.—Sheets of all grades and sizes find a good market, and the price-list shows a firmer tendency. Jobbers quote Stove Pipe size, No. 27, at 3.60c. to 3.65c., and Galvanized Sheets, 70 to 70 and 5 off in round lots. Some of the independent mills have announced an advance in the price of Sheets in this market the past week.

Pig Lead.—The market for Pig Lead continues to show an improved tendency and the volume of business the past week has been on a much broader scale. Prices hold firm and Missouri brands are quoted at 4.05c. and Desilverized at the same price.

Spelter.—The Spelter market shows an inactive tendency and a quotation of 3.90c. covers the price conditions.

Cincinnati.

FIFTH AND MAIN STS., February 11, 1902.—(*By Telegraph.*)

The general trend of the Pig Iron market has in no way been altered by the passage from January to February; all that has been recently said regarding the situation still holds good. There is quite a good tonnage of Iron being sold, most of it covering deliveries in the third quarter and not a little for the fourth. The demand seems to strengthen rather than decrease, and some grades, notably Mill Irons, are commanding a premium. Prices are going up, and even the action of some of the larger interests in refusing to advance does not appear to be able to hold them still. With the exception of the continued trouble in making deliveries on old contracts there is not a dark spot on the whole situation.

Freight rate from the Hanging Rock district is $1.10 and from Birmingham $2.75. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$15.25 to $15.75
Southern Coke, No. 2	14.75 to 15.25
Southern Coke, No. 3	14.25 to 14.75
Southern Coke, No. 4	13.75 to 14.25
Southern Coke, No. 1 Soft	15.25 to 15.75
Southern Coke, No. 2 Soft	14.75 to 15.25
Southern Coke, Gray Forge	13.75 to 14.25
Southern Coke, Mottled	13.75 to 14.25
Ohio Silvery, No. 1	17.50 to 17.75
Ohio Silvery, No. 2	17.00 to 17.50
Lake Superior Coke, No. 1	18.00 to 18.35
Lake Superior Coke, No. 2	17.60 to 17.85
Lake Superior Coke, No. 3	16.35 to 16.85
Southern Basic	.... to 16.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades	$19.25 to $20.25
Standard Southern Car Wheel, No. 2	18.75 to 19.75
Lake Superior Car Wheel and Malleable	20.00 to 21.00

Pittsburgh.

HAMILTON BUILDING, February 11, 1902.—(*By Telegraph.*)

Pig Iron.—Last Sunday ten furnaces in the Mahoning and Shenango valleys were banked for want of Coke, which shows that the car situation is about as bad as it has been at any time since the car shortage started. The recent cold snap and several railroad wrecks are given as the reason for the recent falling down again in car supply. The Pig Iron situation is as strong as it possibly could be, and there is every indication that prices of Metal will be higher. Buying of all kinds of Iron is heavy and the supply is limited. Bessemer Iron for second quarter has sold at $16.25 to $16.50 at furnace. There have been several round sales of Basic, deliveries running up to October in some cases at $16 at furnace. There is a very active demand for Forge Iron, and it sells readily at $16.25 to $16.50, Pittsburgh. Foundry Iron is also very active, the small foundries buying liberally and for extended delivery. We quote Bessemer Iron at $16 to $16.25 at furnace for delivery prior to July, while small lots for February and early March shipment have sold at $16.50 to $16.75 at furnace. Forge Iron is firm at $16.25 to $16.50; No. 1 Foundry, $17.25 to $17.50, and No. 2, $16.75 to $17, f.o.b. cars Pittsburgh. We note a sale of 10,000 tons of Basic and another of 5000, both at $16, Valley furnace, for extended delivery. Also a sale of 1000 tons of Standard Forge at $16.25, Pittsburgh.

Steel.—There is not much doing in Steel, for the reason that none of the mills have any Steel to spare, and where sales are made, they are for small lots only and at very high prices. Prompt Billets for early delivery have sold at $29 to $29.50, maker's mill. Sheet Bars have sold at $32.50 to $33, delivered, and could hardly be had at these abnormally high prices. A few of the independent Sheet mills are getting Sheet Bars on old contracts at much lower figures.

Muck Bar.—Prices of Muck Bar are much lower than they ought to be when the present high prices of Forge Iron are considered. None of the large consumers are in the market, and there is not much demand. We note a sale of 2000 tons of standard grade Muck Bar at $28.75, Pittsburgh, and we quote the market at $28.75 to $29, delivered at buyer's mill. We note, however, that some sellers are quoting higher prices and report sales as high as $40, Pittsburgh.

(*By Mail.*)

The serious shortage in Steel referred to before, and which is being severely felt by the independent Sheet mills, seems to be getting worse, and it is not likely there will be much relief before summer or fall. Sheet Bars for prompt shipment have sold at $32.50 to $33, at maker's mill, and even at these high prices the supply is very limited. Another meeting of the Sheet mills is to be held in Pittsburgh this week. It is hoped to have a fuller attendance than at the first meeting, held last week. The situation in the Iron trade is very strong, and prices on all kinds of material, with the exception of Pipe, are very firm. A good deal of new Pipe capacity is coming on the market, and some of these new mills are making low prices to get orders. Bessemer Pig Iron for second quarter delivery has sold at $16.50, at furnace. Billets and Sheet Bars can hardly be had at any price, and the outlook for supply of Steel for finishing mills that buy in the open market is very serious. Prices on Finished Iron and Steel are practically unchanged, but an advance of about $2 a ton on Steel Bars in the near future is not improbable.

Spelter.—We quote Prime Western grades of Spelter at 4.10c., Pittsburgh. Some sellers are quoting higher prices.

Ferromanganese.—We continue to quote 80 per cent. domestic Ferro at $52.50, and foreign at $50, in large lots delivered at buyer's mill.

Bars.—A good deal of tonnage is being placed in Steel Bars, and the mills are well sold up for the next two or three months. There is a sentiment among some mills that prices of Steel Bars ought to be at least $2 a ton higher, and it is possible that the mills may advance prices before very long. There is a fair demand for Iron Bars, but it is not quite so large since the recent advance in prices was made. We quote Steel Bars at 1.50c. to 1.60c., at mill, half extras, for Bessemer stock, with $2 a ton advance for Basic. For small lots of Steel Bars the following prices are charged: Less than 2000 to 1000 lbs. of a size, 5c. advance; less than 1000 to 500 lbs., 15c.; 500 lbs. and less of a size, 25c. per 100 lbs. advance, half extras. The price of Iron Bars is firm at 1.60c. at mill, half extras. Steel Hoops are 1.90c., base, in carloads, with the usual advances for small lots.

Plates.—There is only a moderate demand, and while none of the Plate mills are in actual distress for tonnage, yet Plate capacity is so large that it takes a heavy demand to keep the mills filled up. If the Structural mills could make better deliveries Plates would also improve, as a good deal of Plate tonnage is held back by delay in building operations, owing to crowded condition of the Structural mills. There is no change in prices, and we quote: Tank Plate, ¼ inch thick and up to 100 inches in width, 1.60c. at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price to 3c. Plate more than 100 inches wide, 5c. extra per 100 lbs. Plate 3-16 inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms, net cash in 30 days. Small lots of Plates from store are sold on the basis of 1.70c. to 1.75c. for Tank, with the usual advances for the higher grades.

Rods.—The market is firm, and we quote Bessemer Rods at $35, maker's mill.

Structural Material.—There is no change in the situation. The mills are congested with tonnage, and are filled up for three or four months ahead. The Passaic and Phœnix mills, in the East, now quote on the basis of 1.80c., Pittsburgh, an advance of $4 a ton, but the other mills have not yet put up prices. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.50c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh. Small lots of Beams and other Material are sold on the basis of 1.85c. to 2c., and higher.

Rails.—The Louisville & Nashville Railroad have placed an order for 25,000 or 30,000 tons of Rails with foreign mills. This business would have gone to Tennessee Coal & Iron Company, but their Rail mill will not be ready for some time yet. The price of the Rails was about $25, ex-ship Pensacola. This price with the duty of $7.84 makes the Rails cost about $32.84, Pensacola. We quote at $28, at mill, but none of the domestic mills can promise deliveries on new orders before September or later. There is an urgent demand for Light Rails, and very light sections have sold as high as $47 a ton.

Sheets.—On account of the Steel situation it would not be surprising if there would be a material shortage in the supply of Sheets early this spring. Of course, there is plenty of Sheet capacity, but the fact remains that the independent Sheet mills are having great difficulty in getting Billets and Sheet Bars, and many of the mills are being seriously hampered in operation on this

account. It does not seem that the supply of Steel will be any better within the next six months, and for this reason a serious shortage in Sheets may develop before long. The market on Sheets is very firm, and a great deal of tonnage is being placed, and for delivery in second quarter. We quote No. 27 Black Sheets, Box Annealed, one pass through cold rolls, at 3c. to 3.10c., and No. 28 at 3.10c. to 3.20c. For small lots from store higher prices are charged. We quote Galvanized Sheets at 70, 10 and 5 off in carloads and larger lots, and 70 and 10 to 70 and 5 for small lots, all f.o.b. maker's mill.

Merchant Steel.—As intimated in this report last week would be the case, the Shafting agreement on prices has been renewed. The mills in the association now quote on the basis of 55 per cent. off in carloads and 50 per cent. in less than carloads, delivered at all points east of the Mississippi River. Tire Steel is 1.70c. to 1.75c.; Toe Calk, best quality, is 1.85c. to 2.05c.; Open Hearth Spring, best quality, 2.50c. to 2.60c.; Hammered Lay Steel, 3.75c. to 4c.; Ordinary Sleigh Shoe, 2c. to 2.25c.; Sleigh Shoes, tapered and bent, 2.75c.; Tool Steel, 6½c. and upward. On Tool Steel freight is allowed to points east of the Mississippi River.

Iron and Steel Skelp.—There is more inquiry for Skelp, and the tone of the market is stronger. We quote Grooved Iron Skelp at 1.75c. to 1.80c., and Sheared at 1.80c. to 1.85c., f.o.b. cars, buyer's mill, terms four months, less 2 per cent. off for cash in 30 days from date of invoice. Higher prices are quoted for Steel Skelp on account of scarcity of Billets.

Merchant Pipe.—Tonnage so far this month has been fairly satisfactory, but there is still a good deal of unevenness in prices of Merchant Pipe, owing to low quotations by the independent mills. To the small trade jobbers quote as follows:

Merchant Pipe.	Black. Per cent.	Galvd. Per cent.
⅛ to ½ inch and 11 to 12 inch	61	48
¾ to 10 inch	68½	56
Casing, Random Lengths.		
	S. & S.	I. J.
2 to 3 inch	58	53½
3¼ to 4 inch	63	59
4¼ to 12½ inch	65	61½
Casing, Cut Lengths.		
	S. & S.	I. J.
2 to 3 inch	53½	59
3¼ to 4 inch	59	55
4¼ to 12½ inch	61½	57½

Prices named by the mills to the jobbers are considerably lower than the above.

Boiler Tubes.—Prices are firm, and there is an active demand, the mills being sold ahead for several months. Discounts to the small trade are as follows:

Boiler Tubes.	Up to 22 feet. Per cent.
Steel.	
1 inch to 1¾ inch and 2¾ inch to 5 inch, inclusive	65½
2 inch to 2½ inch, inclusive	60
6 inch and larger	59
Iron.	
1 inch to 1½ inch and 2½ inch	43½
1¾ to 2¼ inch	43
2¾ to 13 inch	53

Scrap.—The amount of tonnage being placed is limited, owing to the high prices quoted by the dealers, who have visible stocks of Scrap well under control. We continue to quote Heavy Melting Stock for Basic and Bessemer practice at $17.50 to $18 gross ton. Cast Scrap is relatively low, and is held at $12.50 to $13 in gross tons. No. 1 Railroad Wrought Scrap is about $16.50 net ton, and Old Iron Rails $22 gross ton.

Coke.—According to the *Courier*, the output of Coke in the Connellsville region last week was 208,381 tons, 20,287 ovens being active and only 289 idle. There is still a shortage in supply of cars and motive power, and some of the Valley blast furnaces have had agents in the Connellsville region during the past week trying to hurry forward shipments of Coke. We continue to quote strictly Connellsville Furnace Coke at $2.25 a ton on contracts for delivery through this year and $2.50 to $3 a ton for prompt shipment. Seventy-two-hour Foundry Coke is $2.75 to $3 a ton on contracts and up to $3.50 a ton for prompt delivery.

The German Iron Market.

ESSEN, January 26, 1902.

Since my last report the demand, so far at least as finished products are concerned, has livened up notably; even in intermediate products the movement is somewhat better and only the raw materials, Pig Iron and Ore, have thus far not felt any betterment. This is readily explained when the fact is taken into consideration that the decline began with finished products, so that the inference is justified that the recovery should begin with them first, and then gradually extend to the raw materials. There has been very little business in Ores. The prices for home high grade Ores still seem too high for consumers, and besides this, the great majority have old remnants of contracts to take care of. Minette is being offered more cheaply, but cannot be purchased in the required quantities because very heavy contracts for Swedish Ores are still being carried out.

There has been a slight improvement in the Pig Iron business, although no particularly noteworthy sales have been made. Still some new business has been done in mill Iron and special Pig. Besides the contracts for export now being filled further inquiries have been received from the United States, and one Belgian plant is reported to have covered its requirements for Spiegeleisen for the whole of 1902. However, the sales made do not yet suffice to insure regular running, and there is little hope of early reducing in stocks of Pig Iron. Prices have slightly improved, and producers incline to the belief that a further strengthening may be looked forward to. Special Mill Iron is now firm at 60 marks; Spiegeleisen, 10 to 12 Manganese, 72 marks; No. 2 Foundry Iron and Hematite Pig, 63 to 65 marks; Foundry Iron No. 3, 61 to 62 marks, f.o.b. furnace. Luxemburg Mill Iron is quoted 44 to 45 marks, and Foundry Iron, 43 to 44 marks, f.o.b. Luxemburg, while Thomas Pig is quoted 57.50 marks, delivered to consuming works.

The demand for Scrap has improved as the result of greater activity of the mills, and dealers are trying to put up prices. The requirements for the first quarter are nearly covered. Prices are for Heavy Cast Scrap, 49 to 50 marks; Heavy Open Hearth Steel Scrap, 48 to 49 marks; Heavy Wrought Iron Scrap, 55 to 56 marks; Old Iron Rails, 68 to 69 marks, delivered. The demand has become livelier in Steel, but is far from sufficient to fully employ the works. The cutting on the part of the small outside Open Hearth plants has stopped, because these plants must count with the higher Scrap prices. The prices quoted by the syndicate are: 75 marks for Ingots, 80 marks for Blooms, 90 marks for Billets, 92 to 93 marks for Sheet Bars, f.o.b. Dortmund, Ruhrort, Rothe Erde or Diedenhofen. The demand is relatively slow for High Carbon Bessemer Billets for tools, the prices remaining 120 to 125 marks.

So far as Finished Iron and Steel products are concerned a notable change has taken place, buying is very much better and the works are more fully employed. Some of the plants, which at the same time are heavily engaged for export work, are somewhat embarrassed as to being able to make deliveries. Steel Bars cannot be bought now under 105 marks and Iron Bars have also risen to 112.50 marks. These prices are for prompt delivery only, while sellers either decline to commit themselves beyond the first quarter or demand 5 to 10 marks advance. The home market has become very much more active in Hoops and Bands, and the mills have been able to repeatedly advance prices, and a good deal of work is obtained for export. For the domestic market Steel Hoops are quoted 117.50 to 120 marks, while for export a concession of about 5 marks must still be made.

The mills have very considerably reduced the prices of Skelp, the result of which was that the consumers took hold at once, and that the plans are fully covered for the first quarter. Now the former prices are being demanded, which are 120 to 122.50 marks for Steel Boiler Tube Skelp, 122 to 125 marks for Iron Gas Pipe Skelp, and 135 to 140 marks for Iron Boiler Tube Skelp.

As is usual in winter, the Tube business is limited

and the amount of work on hand at a number of the plants is rather low. The offers for export of 80 to 82 per cent. discount are not very attractive, and are therefore only accepted in exceptional cases. There is little doubt that the spring will make the Tube business more active. The American competition is entirely absent for the time being.

There is a lively demand for Plates, and orders are coming in quite freely, and in the export trade prices are a little better, and even for the home market a slight advance is granted. It is hoped that soon the prices may be brought back to 120 marks for Merchant Bars. On Boiler Plates the quotation is 160 marks; on Structural Plates, 140 marks, base, f.o.b. Essen, Siegen and Dillingen. Locomotive Boiler Plates are quoted 165 marks, f.o.b. mill. Sheets are also quite active, both for the home and for the export trade. For the home trade all Sheets are quoted 115 to 125 marks. It is believed that the organization of a Sheet syndicate is pretty certain at the end of this month.

In the Wire business the good effect of the extension of the Wire Rod syndicate is clearly shown. Business has become more active, and the price for Wire Rods for export has been raised so much that it was possible to give up the idea of lowering the price for the home market. On the contrary, it is possible that a slight rising in prices may now take place. At the present time the quotation remains 125 to 127.50 marks, at which prices consumers have covered for the first quarter. Ordinary Steel Drawn Wire is quoted 135 to 140 marks. The export of different grades of Drawn Wire is very active, but there is still a good deal of sharp competition. After having held back for a long time consumers have bought quite heavily of Wire Nails for the home market, particularly since now all the works belong to the syndicate. By two successive advances following rapidly upon one another prices have been lifted to 155 to 160 marks.

In the Beam market considerable orders have been placed for spring delivery. The price is 100 marks, f.o.b. Burbach, or equivalent. There is probably very little thought of changing this price until the spread of 10 marks between Beams and Bars has been again attained.

A few export orders have been received for railroad material, but the large Mexican business has gone to foreign works. An association has been formed among the makers of Light Rails, and prices have been advanced about 8 marks. Mine Rails and Light Rails are now quoted at 97½ to 100 marks; Girder Rails, 135 to 140 marks. So far as rolling stock is concerned, it may be noted that recently 800 locomotives have been ordered, which gives the shops work for a considerable period. It is expected that at an early date orders for 4000 freight cars will be placed. The machine shops and foundries are suffering quite generally from lack of work. In the Hardware industry there has been a little more life lately. Prices have remained low and net a loss, particularly in Screws, Bolts and Rivets.

New York.

NEW YORK, February 12, 1902.

Pig Iron.—A few good sized lots have been placed in this market during the week, and there has been quite a run of moderate sized orders for delivery to New England points. The associated Southern furnaces maintain their attitude of conservatism and continue to quote $12 for No. 2, Birmingham. The January deliveries of Foundry Iron on the part of the Southern furnaces were nearly 50 per cent. greater than the make of that month of Foundry grades. We quote for Northern Irons: No. 1, $17.65 to $18; No. 2 X, $16.75 to $17.25; No. 2 Plain, $16.15 to $16.50; Gray Forge, $15.50 to $16; Tennessee and Alabama brands, No. 1 Foundry, $16.25 to $16.75; No. 2 Foundry, $15.75 to $16; No. 1 Soft, $16.25 to $16.75; No. 2 Soft, $15.75 to $16; No. 3 Foundry, $15.25 to $15.50; No. 4 Foundry, $14.75 to $15; Gray Forge, $14.50 to $14.75.

Cast Iron Pipe.—No large orders have been placed in this section for some time, but the shops have a very large tonnage on their books and some of them have trouble in meeting the views of customers on deliveries on certain sizes.

Steel Rails.—The Louisville & Nashville Railroad is reported to have placed its order for 25,000 tons of Steel Rails abroad. No details have been given out. We continue to quote $28 for Standard Sections, at Eastern mill.

Structural Material.—The order for the Structural Material for the Rapid Transit power house has been placed, the leading interest securing the work. There is a good deal of talk about importing Beams and Angles, but so far as we can learn nothing has been done as yet. Prices are quoted as follows at tidewater: Beams, Channels and Zees, 1.75c. to 1.95c.; Angles, 1.75c. to 1.85c.; Tees, 1.80c. to 1.85c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.78c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.40c. for C. H. No. 1, 2.90c. for Flange, and 3.40c. for Fire Box. Refined Bars are 1.65c.; Soft Steel Bars, 1.70c.

P. H. Patriarche and Park E. Bell have formed the firm of Patriarche & Bell, and have secured the agency for the sale in the New York market of the Crucible Steels produced by Brown & Co., Incorporated, of Pittsburgh. The new firm have opened offices and warerooms at 215 Pearl street, New York, where a large assortment of the various grades and shapes of Steel are carried. Both members of the firm are well known in the trade. Mr. Patriarche was connected with the Crescent Steel Company for 25 years, having charge of their Eastern business for 15 years. Mr. Bell was formerly manager of the Eastern office of the Park Steel Company, having been connected with the firm for 20 years. Brown & Co. were producing Iron as early as 1825, and for the last 22 years have been making Crucible Steels. The concern are also known as the Wayne Iron & Steel Company.

Metal Market.

NEW YORK, February 11, 1902.

Pig Tin.—Although the London market has scored a sharp advance, prices here have been influenced but slightly. The rise here has been far from commensurate to the London advance. Yesterday February Tin sold here at 24.35c., which is equivalent to £112 in London. At the same time London quoted £112 15s. The reason given for this discrepancy is that supplies here are ample and business coming from the interior is extremely small. At the usual monthly bulletin sale at Batavia to-morrow about 6000 piculs will be disposed of. Before the close to-day the metal became firmer and a sale of spot was made at 24.60c. Closing prices to-day were as follows: Spot, 24.55c. bid, 24.75c. asked; February, 24.40c. bid, 24.75c. asked. London, £113 for spot and £108 for futures.

Copper.—Manipulators and speculators are still the ruling factors in the market. Their operations have tamed down a good deal, however. They succeeded in bringing up prices to 13c. for Lake, but since the market has quieted down completely and is now lower. It is said that there are many resales in the market. The fact that the large consumers have been filled up by the producers makes the realization on such speculative lots quite difficult. European markets have been easier, and it is reported that the Rio Tinto Copper Company entered the market as sellers at the close of last week. Exports so far this month aggregated 4200 tons. It appears that the total exportations this month will again prove very heavy. Before the close to-day the market commenced to sag, and at the close quotations were as follows: Lake, 12¾c., sellers; Electrolytic, 12⅝c., sellers; Casting, 12½c., sellers. There were no buyers. London closed £55 for spot and £54 7s. 6d. for futures. Best Selected was quoted £60 10s.

Pig Lead—Is firm, and some disposition is shown on

the part of speculators to engage for future delivery. Bids were made as high as 4.15c. for May and June delivery, without finding sellers. The quotation of the American Smelting & Refining Company is unchanged at 4.10c., New York, and 4.05., St. Louis, for Desilverized, 15 days. London closed to-day £11 11s. 3d. This shows a decline of 1 shilling 3 pence, as compared with last week.

Spelter—Is very weak. The offers from the West came in good volume, but buyers were scarce. It seems that the refiners, who held back their goods in anticipation of the consolidation which was not effected, are now willing and, in fact, anxious to be relieved of the metal. Spot declined 10c., is nominally quoted here at 4.10c., and shipments from the West can be obtained at 4.05c. St. Louis declined to 3.87½c. London closed to-day £17 12s. 6d.

Antimony—Is unchanged. Hallett's is quoted 8c. to 8¼c.; Cookson's, 10¼c., and outside brands, 7½c.

Nickel.—Ton lots are quoted at 50c. The market is unchanged.

Quicksilver.—Prices are on a basis of $48 per flask of 76½ lbs. in lots of 56 flasks or more.

Tin Plates.—The market is entirely unchanged. The American Tin Plate Company are quoting for delivery until July 1 on a basis of $4.19 per box of standard 100-lb. Cokes, f.o.b. New York, or $4 f.o.b. Pittsburgh district.

George W. Jaques, who for upward of 35 years has been connected with the old established firm of A. A. Thomson & Co. of New York City, which went out of existence on January 1, has established himself at 234 Pearl street, New York, as a Tin Plate and Metal broker.

The Rolling Mill Company of America.

Work on the new ten-mill plant of the Rolling Mill Company of America, at South Connellsville, Pa., will be pushed to completion as rapidly as possible. Ground for the plant has already been broken and contracts have been let for the buildings and machinery. The plant will include four principal buildings, with a combined floor space of 66,500 square feet. The main building will be 108 x 410 feet; the finishing building, 50 x 300 feet; packing, shipping and warehouse building, 30 x 150 feet, and boiler house, 40 x 80 feet. All these buildings will be of steel and brick. All of the machinery, except the rolls, will be operated by electricity. The rolls will be driven by two 36 x 60 inch Hamilton-Corliss engines, each capable of developing 1600 horse-power. The fly wheels of the engines will be 30 feet in diameter, and will weigh 82 tons each. It is said that these will be about the largest fly wheels in use in this country. The plant throughout will be equipped with the most modern and improved machinery, and is designed to be a model establishment of its kind. George J. Humbert, who is well known as the head of the Humbert Tin Plate Company and the founder of the town of South Connellsville, is at the head of the new company. Mr. Humbert resigned the position of district manager of the American Tin Plate Company some time since.

Witherbee, Sherman & Co.—At the annual meeting of the stockholders of Witherbee, Sherman & Co. (incorporated) of Port Henry, N. Y., held last week, the following directors were elected: F. S. Witherbee, Wallace T. Foote, Jr., Lewis W. Francis, W. C. Witherbee, Warren Delano, Jr., and Moses Taylor. The officers of the company are as follows: F. S. Witherbee, president; Warren Delano, Jr., vice-president; W. C. Witherbee, treasurer; Lewis W. Francis, secretary. It was decided to double the capacity of the present separator for treating "old bed" ore as soon as possible. Other developments and extensions to the property were authorized, including the sinking of an additional shaft on the so called Harmony or low phosphorus deposits recently discovered and on which one shaft has already been sunk.

The New York Machinery Market.

NEW YORK, February 11, 1902.

Optimism continues, especially with the large machine tool merchants. One of these said yesterday: "Too busy to talk, more work than we can attend to; have the whole force working nights; factories are crowding up rapidly and deliveries are very long. Prices are steady and unchanged, and punching and shearing machinery is especially scarce." He expressed conditions in a manner characteristic of the entire machine tool trade of this city. There is ample evidence that new work is coming to the front in increased volume and that the days are none too long to handle the tremendous correspondence of these busy days.

One well-known member of the local engine trade said that he has been forced to refrain from bidding on work because his shop was filled up for several months. He said that a good number of propositions which have been held off from month to month have now reached the point where they must be closed immediately. The purchasers want deliveries within 30 days or so and simply cannot obtain them. They are consequently obliged to buy second-hand engines and are paying almost as much for them as the new machines were quoted for but a few weeks ago. Second-hand machinery business in all liness is excellent. For some unknown reason a great many concerns have persistently deferred their purchases, and now, being compelled to accept poorer propositions than those first considered, are regretting it. Despite the crowding up of the principal engine building establishments, it is reported that some concerns are cutting prices quite freely.

In the boiler trade business is constantly growing, and deliveries are becoming more and more protracted. Prices are very firm.

The pneumatic tool trade are enjoying an excellent demand at this time. The Standard Pneumatic Tool Company report that January was by far the best month they ever had.

Machine Tools, &c.

The most important machine tool order placed during the week was awarded by the Alliance Machine Company of Alliance, Ohio. It went to the Niles Tool Works Company, and amounted to upward of $60,000. The former is a new concern capitalized at $200,000. Iron working machinery will be the product of the new shops.

A number of extensive machinery orders have been placed by the Fore River Ship & Engine Company of Weymouth, Mass. They are building a large new machine shop. Aside from the machine tool orders, a contract was placed with Hooven, Owens & Rentschler of 39 Cortlandt street for a 1000 horse-power engine direct connected to an air compressor, and a 400 horse-power engine direct connected to a General Electric generator.

It is reported in the trade that Moran Brothers, the Seattle shipbuilders, are about to add extensively to their plant. Bonds to the extent of $500,000 have been sold for this purpose. It will be recalled that this concern increased their works considerably a short time ago, and have since taken on several heavy shipbuilding contracts.

Two additions are being built to the plant of the Heine Safety Boiler Company at Phœnixville, Pa. The addition to the main shop will be 109 x 100 feet, and an extension to another building is to be 33 x 60 feet. The equipment for this work has been purchased. The company contemplate the erection of a new power house next summer. This building will be 35 x 85 feet. For the equipment of this building the company will require direct connected engines and dynamos, and they will be interested in information on this subject.

The Hisey-Wolf Machine Company have just acquired the plant of the Hisey Machine Works of Cincinnati. The latter shops have been in operation only 60 days producing the Hisey electrical grinder. A fine new equipment has been installed, consisting principally of lathes from the R. K. Le Blond Machine Tool Company and H. A. Gray & Co. planers.

Plans are in preparation for extensions to the plant of

the Johnston Harvester Company of Batavia, N. Y. The new additions will double the capacity of the works. A new power plant is to be built, to have an ultimate capacity of 1000 horse-power. At present half of this equipment will be installed. The engine is to be direct connected to an electric generator, and this step will mark the electrical driving of the machinery operated throughout the plant. In connection with this work 50 motors of varying sizes will be installed at once. To the foundry a very formidable addition will be made. It is at present one-story high and 200 feet long. Another story is to be added to the foundry, as it now stands, and a two-story extension 310 feet long will be added, making the building 510 feet in length. The warehouse will be extended 240 feet, and large additions will be built to the machine and blacksmith shops. The officers of the company are: Byron E. Huntley, president; E. W. Atwater, vice-president; L. D. Collins, secretary; G. A. Farrall, superintendent. At the annual meeting of the stockholders, held last month, the capital of the company was increased from $500,000 to $1,000,000.

We are advised by the Berlin Machine Works, manufacturers of special wood working machinery, Beloit, Wis., that they are rushing the buildings of their new plant as fast as possible. A very large equipment of machine tools, &c., will be required for fitting out the new shops. None of this has been purchased as yet. In fact the company have not fully decided upon what machinery will be required.

E. C. Lufkin, manager of the Snow Steam Pump Works of Buffalo, N. Y., informs us that this branch of the International Steam Pump Company is to have their plant doubled. There will be three new buildings; a foundry, 132 x 450 feet; a machine shop, 100 x 450 feet, and a new office building, 75 x 100 feet. The contract for the steel structures has been awarded to the American Bridge Company, and ground will be broken within six weeks.

Miscellaneous.

The Case Mfg. Company of Rochester, N. Y., inform us that they are equipping a new factory for the building of a new line of special tools, dies and machinery. They are in the market for a universal milling machine, a 16-inch shaper, a 14-inch by 5 or 6 foot tool makers' lathe with compound rest and several presses, forges, &c. The company have a capital of $30,000.

The Hale & Kilburn Mfg. Company of Philadelphia have purchased a large tract of land, 750 x 200 feet, being the entire block between Eighteenth street, Glenwood avenue, Margie street, Pennsylvania Railroad and Lehigh avenue. A set of thoroughly modern and up to date factories will be built for the removal of their large wood working plant, now in the heart of the city. The plant will have about 250,000 square feet floor area; run by a 300 horse-power engine, and will include lumber dry kilns, a complete wood working mill, finishing room, stained glass department, spring department, upholstery department and machine shop. The company manufacture custom made furniture and interior wood work, and also make a large line of furniture specialties. They are the largest manufacturers of railroad and street railway car seats in the country.

The following announcement has been sent to the trade by the American Air Compressor Works of 26 Cortlandt street, New York, a new firm, of whom William S. Fairhurst, formerly manager of the Clayton Air Compressor Works, is manager, and John J. Riley is treasurer: James Clayton, late sole owner and proprietor of the Clayton Air Compressor Works, having sold his entire interests to the International Steam Pump Company, we have organized the American Air Compressor Works for the manufacture of similar machines, &c., such as air and gas compressors, carbonic acid gas machines, air receivers, vacuum and tar pumps, &c. Our works, located at Van Brunt and Summit streets, Brooklyn, N. Y. (formerly South Brooklyn Steam Engine Works, where John J. Riley has been employed and established for the last 40 years), are equipped with the latest improved machinery, including blacksmith shop and foundry, which have been in successful operation for many years. William S. Fairhurst, late manager of the Clayton Works, will have entire charge of manufacturing. Frederick B. Vail, late manger of the Clayton offices, will have charge of the sales department at our New York offices, Havemeyer Building, 26 Cortlandt street, New York.

The Goteborgs Mekaniska Werkstads Aktiebolag of Gothenburg, Sweden, intend to build a dry dock for vessels 490 feet long and 25 feet draft, or from 6000 to 8000 tons displacement, and have applied to the Government for subsidies. If this dock is built it may to an extent promote the establishment of direct transatlantic steamship communication. The present dry dock is not large enough for ocean steamers of largest size.

The Staten Island Ice & Cold Storage Company will erect a 50-ton ice making plant in the Borough of Richmond, S. I. Contracts for the machinery required have been awarded to the York Mfg. Company, York, Pa.

Walter J. Buzby, proprietor of Hotel Dennis, Atlantic City, N. J., has decided to install in this hotel a 10-ton refrigerating and ice making plant and has awarded contract to the York Mfg. Company, York, Pa., for same.

Messrs. Harris, Hoffman, Shaw & Miller, Cape May, N. J., will erect a 15-ton ice making plant and have awarded contract for the machinery required to the York Mfg. Company, York, Pa.

Runkel Brothers, manufacturers of chocolates, 445-451 West Thirtieth street, New York, are about to erect a new building on the premises of the building recently destroyed by fire. It is to be nine stories high and will be equipped with electrically driven machinery and a modern power plant.

The following awards have been made for furnishing supplies for the Mare Island Navy Yard, under bids opened January 14:

Class 31—Bertsch & Co.
Class 32—Henshaw, Buckley & Co.
Class 33—Henshaw, Buckley & Co.
Class 34—Henshaw, Buckley & Co.
Class 35—Manning, Maxwell & Moore.
Class 36—Henshaw, Buckley & Co.
Class 37—Manning, Maxwell & Moore.
Class 38—U. Baird Machinery Company.
Class 39—Manning, Maxwell & Moore.
Class 40—Fairbanks Company.
Class 41—Henshaw, Buckley & Co.
Classes 28 and 29—Not decided.
Class 27—Crucible Steel Company.
All other classes to the lowest bidders.

Awards for supplies for the Puget Sound Navy Yard have been given to the lowest bidders, excepting class 2, which goes to the Industrial Works.

The contract for furnishing boilers at the navy yard, Puget Sound, has been awarded to Henshaw, Buckley & Co. of San Francisco, Cal., at $15,430.

Bids for two coal hoisting towers and machinery at the naval station, San Juan, P. R., were received by the Chief of the Bureau of Yards and Docks, Navy Department, Washington, D. C., on January 18, as follows:

Item 1. Price for two steel towers and machinery erected on naval station wharf, complete, in accordance with plans and specification.
Item 2. Price for two steel towers and machinery, complete, in accordance with plans and specification, delivered alongside ship in New York Harbor.
Item 3. If a shorter time for completion than that required by Paragraph 9 of this specification can be guaranteed, or if a longer time is required, bidders may submit the time for completion upon which their propositions are based under this item. The shortest time will be given preference, other things being equal.

Boston Bridge Works, Boston, Mass., Item 1, $23,000.
C. W. Hunt Company, New York City. The following bids are from the bidder's own specifications: Item 1, $19,600; 2, $200; 3, $17,600; 4, $5600; 5, add to item 3, $1260; 6, add to items 1, 3, 4, 5 and 7, $1600; 7, $14,391.
Snare & Triest, New York City, Item 1, $18,710; 2, $23,300.

The Gruson Iron Works.—At the annual meeting of the Gruson Iron Works of Eddystone, Pa., held in New York last week, Thomas Prosser was elected president of the company, and David Townsend was elected treasurer. The retiring president and treasurer were P. H. Griffin and T. Guilford Smith, respectively. C. W. Barnum was re-elected vice-president, and A. E. Piorkowski, secretary. The directors elected are as follows: Thos. Prosser, New York; C. W. Barnum, Lime Rock,

Conn.; A. E. Piorkowski, New York; David Townsend, Philadelphia; Ernst Thalmann, New York; George Gudewill, New York; S. Singer, Paris; H. L. Satterlee, New York; Addison S. Pratt, New York. As the new works at Eddystone have been in operation but a short time no financial statement was submitted.

Iron and Industrial Stocks.

Both as to volume of business and as to fluctuations in prices, the week under review has been a quiet one in the market for industrial stocks. On the whole values have been steady and in many issues there has been a slight hardening. In some of the stocks there appear to have been some investment purchases.

The Niles-Bement-Pond Company.—The report of the Niles-Bement-Pond Company for the year 1901 shows:

Net earnings of constituent companies for the year 1901			$1,468,570.87
Divdends paid out of earnings for year—			
Three quarterly on preferred	$190,125		
Semiannual on common	150,000	$340,125	
Dividends declared—			
Quarterly on preferred, payable February	63,375		
Semiannual on common, payable March 5 and June 5	150,000		
Extra dividend on common, payable May 15	50,000	263,375	603,508.00
Total			$865,070.87
Reserved for depreciation			196,605.19
Net amount added to reserve fund			$668,465.68
Previous reserve fund			1,617,376.10
Present reserve fund			$2,285,541.78

Dividends.—The Pratt & Whitney Company have declared the regular quarterly dividend of 1½ per cent. on their preferred stock, payable Feb. 15.

The Niles-Bement-Pond Company have declared a dividend of 1½ per cent. and an extra dividend of 1 per cent on their common stock. The usual quarterly dividend of 1½ per cent. also has been declared on the preferred stock, payable February 15.

Parkersburg Iron & Steel Company.

Permanent organization of the Parkersburg Iron & Steel Company, incorporated some time since for the manufacture of sheets, was effected last week at Parkersburg, W. Va., when the following officers were elected: President, H. H. Nieman, formerly president of the Canonsburg Iron & Steel Company of Canonsburg, Pa.; vice-president, H. S. Duncan, formerly a member of the Canonsburg Iron & Steel Company; secretary and general manager, J. F. Budke, a State Senator of Pennsylvania and former manager of the Canonsburg Iron & Steel Company; treasurer, L. A. Meyran, formerly secretary and treasurer of the Canonsburg Company, and assistant secretary, A. H. Geilfuss, formerly assistant secretary of the company named. The following, in addition to the above named officers, were elected on the Board of Directors: A. E. Succop, A. E. Nieman, F. W. Budke, W. R. Geilfuss, George W. Flowers, Charles H. Geilfuss and W. H. Paxton.

The company's plant, which is already in partial operation, is located at Parkersburg, W. Va. Four mills were recently started and two additional mills are now being erected. The combined capacity of the six mills will be 70 tons of sheets daily. The company's plant embraces a main mill building, 120 x 486 feet. This building contains sufficient space for the installation of six additional mills, which it is proposed to add to the plant during the present year. An additional building, 110 x 225 feet, will be erected adjoining the mill building for a skelp and bar mill, and a forge department to make hammered iron blooms for the production of sheet iron will also be installed, together with a tin dipping plant. The entire plant is expected to be in operation within two months. At present the office of the company is located at the Times Building in Pittsburgh. As reported recently in these columns, the company have bought the stamping plant of the Budke Mfg. Company of Canonsburg, Pa., and will remove the same to Parkersburg, placing it on a site adjoining their rolling mills. A number of additions and improvements will be made to the stamping plant, including an equipment of the most modern improved machinery.

PERSONAL.

Allan Wood Smith has been appointed general manager of the plant of the Eleanor Iron & Steel Company at Irwin, Pa. The concern make merchant iron and skelp. Mr. Smith has had a long experience in the rolling mill business and is regarded as a thoroughly competent manager.

Joseph S. McDonald, formerly of the shops of the Westinghouse Electric & Mfg. Company, Pittsburgh, has gone abroad and will take charge of the brass and gray iron foundry of the Westinghouse Electric Company, Limited, at Birmingham, England.

At a meeting of the Board of Directors of the Old Dominion Iron & Nail Works Company, held on Monday, February 3, Arthur B. Clarke, secretary and treasurer, tendered his resignation, which was accepted by the board. A committee of the Board of Directors was appointed to draft suitable resolutions as to Mr. Clarke's long association with the company. J. B. Carter was appointed treasurer and H. R. Wayt secretary. Both of these gentlemen have been long associated with the concern.

Harry R. Hall, who had charge of repairs of the Pacific Steel Company's charcoal blast furnace at Irondale, Wash., representing the Wellman-Seaver Engineering Company, Cleveland, Ohio, has been appointed superintendent of blast furnaces of the Lake Superior Power Company at Sault Ste. Marie, Ontario.

C. T. Needham of John Needham & Sons, merchants, Manchester, is now in this country.

Charles L. Duenkel, who has had long experience in the designing and construction of inclined railways and in building elevators, has established an office as consulting engineer at 120 Liberty street, New York. He was formerly engineer of the Sawyer Elevator Device Company, and for 11 years assistant to the chief engineer of the Otis Elevator Company.

A. L. Schultz, formerly manager of the American Bridge Company in the Pittsburgh district, has resigned and has been succeeded by Marshall Williams, formerly inspector of shop practice at the Pencoyd Works of A. & P. Roberts Company at Pencoyd, Pa.

W. D. Hardesty, formerly superintendent of the Niles Works of the American Sheet Steel Company, has been made division superintendent of the Niles and Struthers mills. C. J. Thomas of the Struthers mills has resigned and has been succeeded by W. H. B. Ward.

Andrew Carnegie has presented to the Stevens Institute of Technology, at Hoboken, N. J., a further sum of $100,000 as an endowment for the Carnegie Laboratory of Engineering, which was dedicated last Thursday and toward the building of which he gave $65,000 three years ago.

Robert P. Bainbridge, who recently resigned as assistant superintendent of the Carrie furnaces of the Carnegie Steel Company, at Rankin, Pa., to take charge of the furnaces of the National Steel Company at Mingo Junction, Ohio, was presented before leaving with a handsome gold watch, charm and chain by the employees of the furnaces.

Watkin Edwards has been appointed master mechanic of the Republic Iron & Steel Company, at Youngstown, Ohio, in succession to Erskine Maiden, who has accepted a position with the National Steel Company.

John Becker, well-known as a builder of milling machines, formerly of John Becker Mfg. Company of Fitchburg and later of Becker-Brainard Milling Machine Company, Hyde Park, Mass., has severed his connection with the last named concern, his resignation taking effect February 1, 1902. For the present Mr. Becker's address will be Hyde Park, Mass.

HARDWARE.

THE question as to the basis on which manufacturers' prices should be arranged to the different classes of the trade is one which has often been discussed, but has never been settled. There are those who maintain that the quantity of goods purchased should determine the character of the price given, large quantities receiving a materially lower price than smaller quantities. Others have maintained that it is proper to give those who are ranked as jobbers a lower price without much regard to the quantity of their purchases, while retailers should be called upon to pay a substantial advance on such prices, also without regard to quantity. These two systems have been tried, and are being tried at the present time, and both are found to be encompassed with difficulties and objections. Indeed, to avoid or minimize these the two plans have not infrequently been combined, but even this has not succeeded in meeting the requirements of the case to the general satisfaction of the trade.

At the present time there is an apparent tendency toward a classification of the trade—dividing the distributers of the manufacturers' products into two great classes, jobbers and retailers—establishing a relatively high grade of prices for the retailers, whether large or small, and a materially lower level for the jobbers, who are often subdivided according to the volume of their business into two or more classes, between whom slight differentials in price are made. This arrangement of prices as its natural result encourages the retail trade to make their purchases of the goods concerned from the jobbers rather than from the manufacturers. It is a system which finds very general favor with the wholesale trade, and is regarded as unobjectionable by many retail merchants who are content to confine their purchases to the jobbers. One great difficulty with this method is the impossibility of drawing a definite line between jobbers and retailers. It is, too, regarded with more or less disapproval by many of the larger retail houses, who buy in sufficient quantities to deal directly with the manufacturer and who prefer the manufacturer as their principal source of supply.

If this principle of dividing the trade into two great departments, wholesale and retail, and grading prices accordingly, were consistently carried out it would give Hardware merchants throughout the country a substantial relief from the competition of department stores and catalogue houses. These houses, if the trade is to be given prices according to their classification rather than according to the volume of their purchases, should be graded with the retailers. If this were the case the great houses in the cities would not be able to purchase their goods at lower prices than the Hardware merchant of a country town, who would accordingly have little difficulty in competing. The trouble is that, as things are, the department store buys practically all its goods at jobbing prices. Purchasing in large quantities, they are enabled in many cases to secure recognition as jobbers, and if the manufacturers will not deal with them it is a comparatively easy thing to get the goods from the jobbers, or in some roundabout way, at a very slight advance on the lowest prices made to the large jobbing trade. It is not surprising that this condition of things is very unsatisfactory to the retailer.

Many things wise and foolish are said in regard to department store competition, and the subject is receiving its full share of attention at the gatherings of the retail Hardware merchants when they meet to take counsel together in regard to their common interests. Whether any new light will be thrown on the problem and anything practical determined in regard to the best methods of correcting the existing conditions remains to be seen. In this connection the following statement of the case, made at the last meeting of one of the important Western associations, deserves the careful consideration of all who are studying trade tendencies and observing the signs of the times:

Let the retailer buy his goods as cheaply as the catalogue house, and the latter would hardly survive. While the jobber is a great factor in the commercial world to-day, controlling many factories exclusively, and many of the wealthiest manufacturers look upon him as the best method of distributing goods, the fact is ever before us that the catalogue house got into the race by getting direct to the manufacturer; the larger retail trade to-day are working more and more away from the jobber and buying in larger quantities direct from the manufacturer.

This remark illustrates the difficulty which besets the arrangement of prices on a basis that will duly conserve the interests of manufacturers, jobbers and retailers. It would be a matter for congratulation if some system could be found which would be satisfactory and just to all the great departments of the trade. Meanwhile it is desirable that manufacturers, who must look upon the problem in the light primarily of their own interests, should also arrange their prices and general methods of marketing goods with a view to the interests of the distributers, both wholesale and retail.

Condition of Trade.

As the month advances there is no sign of a diminution in the demand or a weakening in the tone of the market. Business is moving along in large volume, and the selling of goods is a comparatively easy matter. There is an impression abroad that perhaps a good many will be in rather short supply before the season is over, and on several kinds of season goods manufacturers are already sold up, and in some cases are withdrawing quotations. Manufacturers are apparently experiencing less difficulty in getting raw material, but the condition of the Iron market is such as to make them apprehensive that there may be more trouble on this score when the trade gets more fully under way. Prices are without important change since our last review. Some consolidations to which we have called attention are under consideration, and the result will be awaited with interest. There is much less ground for complaint on the part of manufacturers in regard to the profits at which their goods are sold, most of them commanding prices which should be reasonably satisfactory. There is, however, a general disposition to be conservative in the matter of prices and not to make advances unless necessary. This comes largely from the general recognition of the fact that high prices developed by combinations, or under the stimulus of an exceptionally heavy demand, are apt to be the source of future trouble, as new competition is encouraged and the basis established for a reaction to a low level. With few exceptions the manufacturers are entitled to the commendation of the trade for the policy they have pursued in this regard. The matter of retail association is attracting much attention among this class of trade, as illustrated in the reports of the annual meetings which are contained in this issue. There is little new to chronicle in connection with export business, which, notwithstanding slight falling off in some directions, continues to be of large and growing volume.

Chicago.

(By Telegraph.)

The West has been visited with heavy snowstorms in some sections, which have cut down trade in those localities. Nevertheless, the volume of business keeps up magnificently, the demand for staple goods being apparently so strong that it cannot be satisfied. The local jobbing establishments were called upon by quite a number of the Wisconsin Hardware dealers who came to Chicago after the close of the convention at Milwaukee. Prospects indicate that February will be another month of very heavy trade.

St. Louis.

(By Telegraph.)

The order of events in the Hardware market is along the same lines as last reported, the amount of demand and inquiry being of a volume satisfactory to the jobbing trade. Heavy shipments are being made in all directions, and it is pointed out that the liberality of the buying shows a marked confidence in the future course of the market. Prices have a hardening tendency in some lines, and further advances are expected in the near future. Spring goods have the largest call, and it keeps the shipping departments on the jump to fill the requirements without delay. The heavy department of the market shares in the general prosperity, and the jobbers say that the present demand and inquiry is of very large proportions, and that a look ahead appears to forecast a continuance of the prevailing satisfactory condition.

NOTES ON PRICES.

Wire Nails.—The demand for Wire Nails has not been unfavorably affected by the recent advance of 5 cents per keg. There is, on the other hand, a large and active demand. Difficulty is experienced at some mills in securing a sufficient number of cars to make prompt shipments. The market is strong, and is represented by the quotation on carload lots of $2.05 to $2.10, f.o.b. Pittsburgh, plus actual freight to destination.

New York.—Unfavorable weather for outside work has affected the local demand for Wire Nails to some extent. The market is represented by the following quotations: Small lots from store, $2.25 to $2.35; carloads on dock, $2.30.

Chicago, by Telegraph.—Wire Nail manufacturers state that they never knew such a demand as at present. The largest manufacturers are resisting a pressure to advance prices still further. It is believed that but for their policy the price would be considerably above that now prevailing. Jobbers note a continued strong movement. Single carloads are quoted at $2.20, and small lots, $2.25 to $2.30.

St. Louis, by Telegraph.—In the Wire Nail market a very fair volume of business is being executed, and prices have a noted firmer tendency. Small lots from store are quoted at $2.35.

Pittsburgh.—We note a heavy buying movement in Wire Nails, which is expected to materially increase the latter part of this month, or early in March, when spring trade usually opens up. The new price of $2.05 in carload lots is, we are advised, being rigidly held, and it is also a fact that Wire Nails for delivery in Texas territory are being sold at this price, plus the actual freight from Pittsburgh, 75 cents, which makes the price of Wire Nails $2.80, delivered at Texas points. Prior to the price agreement, Wire Nails were sold as low as $2.40, delivered, in Texas. Another meeting of the Wire Nail mills is to be held in the latter part of this month, when it is possible another slight advance in prices may be made. We quote Wire Nails at $2.05 in carloads and larger lots, and $2.10 in small lots, plus actual freight to destination.

Cut Nails.—The market is firm at the recent decline of 10 cents per keg in Cut Nails. In some sections the difference in price between these and Wire Nails has stimulated the purchase of the Cut. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	$1.95
Less than carload lots	2.00

New York.—The demand for Cut Nails in the local market is moderate. New York quotations for carload and less than carload lots are as follows:

Carload lots on dock	$2.08
Less than carload lots on dock	2.13
Small lots from store	2.20

Chicago, by Telegraph.—Jobbers of Cut Nails continue to quote small lots at $2.30, and report a fair movement.

St. Louis, by Telegraph.—The market for Cut Nails is on a limited basis, and small lots from store are quoted from $2.30 to $2.35.

Pittsburgh.—There is only a fair demand for Cut Nails, which, however, is expected to increase just as soon as spring trade opens up. The recent reduction in prices of 10 cents a keg has, we are advised, accelerated demand to some extent. We quote Cut Nails at $1.95, base, in carload lots, and $2 in less than carload lots, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination.

Barb Wire.—The unusual demand in midwinter for Barb Wire is taxing the mills to keep up with their shipments. The present time finds stocks low in both jobbers' and manufacturers' hands. This is especially the case in the West. Quotations for round lots are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, $2.60; Galvanized, $2.90; less than carload lots, Painted, $2.65; Galvanized, $2.95.

Chicago, by Telegraph.—Manufacturers of Barb Wire are finding it impossible to turn out Barb Wire rapidly enough to meet the wants of the trade. Jobbers are having such a strong demand that they are beginning to write excuses to their customers for not making more prompt delivery. Single carloads are quoted at $2.80 for Painted, and $3.10 for Galvanized, with 5 cents extra for small lots.

St. Louis, by Telegraph.—Barb Wire is in a very good demand, and the business in hand is of satisfactory proportions. Jobbers quote carload lots at $2.95 for Painted and $3.25 for Galvanized.

Pittsburgh.—Demand for Barb Wire from the mills for spring delivery continues good, and is expected to increase right along, as spring trade will soon open up. We quote Galvanized Barb Wire at $2.90 in carloads to jobbers and Painted at $2.60, terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh. For small lots higher prices are charged.

Plain Wire.—The market for Plain Wire is steady, with a large demand at the recent advance in price. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

Base sizes.	Plain.	Galv.
To jobbers in carload lots	$2.00	$2.40
To jobbers in less than carload lots	2.05	2.45
To retailers in carload lots	2.10	2.50
To retailers in less than carload lots	2.20	2.60

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

6 to 9	Base					$0.40	extra.
10	$0.05	advance	over	base		.40	"
11	.10	"	"	"		.40	"
12 and 12½	.15	"	"	"		.40	"
13	.25	"	"	"		.40	"
14	.35	"	"	"		.40	"
15	.45	"	"	"		.75	"
16	.55	"	"	"		.75	"
17	.70	"	"	"		1.00	"
18	.85	"	"	"		1.00	"

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

Chicago, by Telegraph.—Manufacturers of Plain Wire report that it is simply a question of getting out product and not of finding a market for it. The demand is fully up to their facilities. Jobbers quote small lots from stock at $2.20, base.

St. Louis, by Telegraph.—The volume of business in

Plain Wire is on a fair scale and prices are firm. Jobbers quote No. 9 at $2.30 and Galvanized at $2.70, with the usual advance for other sizes.

Pittsburgh.—Demand in Plain Wire is heavy and the advanced prices are being firmly held. We quote Plain Wire at $2 and Galvanized $2.35 in carloads, f.o.b. Pittsburgh, usual terms. For small lots from $2 to $3 a ton higher prices are charged.

Axes.—The trade are awaiting the result of negotiations, to which we have referred, in regard to the consolidation of Axe interests. A meeting will be held by the manufacturers at an early date, at which it is understood that final action will be taken in the matter. Until such meeting, which will bring together all the principal manufacturers, is held, nothing definite can be determined. Meanwhile the manufacturers are refraining from making quotations and are apparently getting ready to enter the market next week with revised quotations, which it is hoped will be justified by the result of the final conference.

Steel Goods.—Several of the manufacturers of Steel Goods have withdrawn quotations. The orders which have been booked are understood to cover the greater part of the output of the manufacturers. This is one of the lines in which it is thought not unlikely that something of a scarcity will be developed before the season is over.

Rosin Sized Sheathing.—The current price on Rosin Sized Sheathing for building purposes is from $28 to $30 per ton in carloads delivered, the range of price depending on the point at which the paper must be delivered and the rate of freight for the particular territory. There is, however, some diversity in current quotations, as for example: A prominent Pennsylvania house quote $27 per ton, f.o.b. their works, York Haven, Pa., for rolls containing 500 square feet, weighing 25, 30 and 40 pounds per roll. Other quotations from concerns making competitive goods are $28.40 per ton in carload lots, New York delivery, while still another company, with works in Pennsylvania, name $29.50 per ton, f.o.b. works, in carloads, 60 days, or 2 per cent. discount 15 days.

Cordage.—Rope continues comparatively light in demand, although there is considerable going from the factories in small lots. Manila Rope has stiffened in price during the week. Quotations, on a basis of 7-16-inch and larger, are as follows: Sisal Rope, from 9 to 9¼ cents; Manila Rope, 13 cents per pound, with ¼ cent per pound rebate allowed on large quantities.

Paris Green.—The market continues strong, with an advancing tendency. Orders are coming in quite freely; much more so than for the last two years at this season. There is considerable unevenness in the market, caused by the various manufacturers quoting different prices. These range from 11 to 13 cents per pound in Arsenic kegs of 200 to 300 pounds. On a basis of 11 cents per pound, prices are as follows:

Arsenic kegs or casks	11 c.
Kegs, 100 to 175 pounds	11½c.
Kits, 14, 28 and 56 pounds	12½c.
Paper boxes, 2 to 5 pounds	12½c.
Paper boxes, 1 pound	12½c.
Paper boxes, ½ pound	13½c.
Paper boxes, ¼ pound	14½c.

Glass.—A steady basis in the Window Glass market has not yet been reached, the offer of the Independent Glass Company of an extra 2½ per cent. discount "from stock lists of Glass on hand" having had a disquieting effect. The American Window Glass Company advised the members of the Jobbers' Association to buy all the Glass they could at the cut. Some jobbers state that they have not been able to place orders at these prices. It is understood that the Independent Company are only selling to jobbers who are friendly to them, and not to those who have contracts with the American Company. The latter have guaranteed an advance in price at the time of the next contract with the Jobbers' Association, which will probably be in March or April. While this price flurry is not likely to affect the figures at which the retail trade can buy Glass in the immediate future, the local trade are not ordering liberally, which is also the case with merchants generally throughout the country. The following are the quotations of the Jobbers' Association:

	Discount.
From store	90 and 10 %
F.o.b. factory, carload lots:	
Single strength	90 and 10 and 7½ %
Double strength	90 and 10 and 10 %

Paints and Colors.—*Leads.*—White Lead in Oil is showing an improvement in demand. The advance in the price of Pig Lead has had the effect of stiffening the market, and the possibility of further advance in raw material has stimulated buying. Quotations are unchanged, as follows: In lots of 500 pounds or over, 6 cents per pound; in lots of less than 500 pounds, 6½ cents per pound.

Hardware Organizations.

Philadelphia Hardware Merchants' and Manufacturers' Association.

The annual meeting of the Philadelphia Hardware Merchants' and Manufacturers' Association was held on the 21st ult., when W. C. Peters of James M. Vance & Co. was elected president and Thomas Devlin of Thomas Devlin & Co. vice-president, T. James Fernley being re-elected secretary-treasurer. The annual address of the retiring president, Hugh McCaffrey of the McCaffrey File Company, was as follows:

This meeting closes the second and last year I have had the honor of being your presiding officer. It has been a prosperous year not only for our members, but to the entire country.

I will try in this report to be as brief as possible. The meetings of our organization have been held regularly on the days called for by our by-laws, with a good average attendance. A number of special meetings were called by the chair, at your request, to take action on matters of importance to our association.

The secretary-treasurer's report will give in full the state of the finances, membership, &c. I have to congratulate you on the fact that we have more money in the treasury and a larger number of members on the rolls than when my administration commenced two years ago. The different committees have carried out the work assigned them with most satisfactory results. Your entertainment of the Pennsylvania Wholesale Hardware Association was a great success, and the special committee which had charge of that function reflected credit on themselves and our organization. You also took a prominent part in entertaining the delegates to the Southern Industrial Convention, held in our city, and made the gentlemen from the South who attended that gathering feel that truly they were in the City of Brotherly Love. You went on record as favoring an appropriation from the city for the South Carolina and West Indian Exposition, which is now being held in Charleston.

Committees from our organization visited Harrisburg and protested against the Employers' Liability act; also against the bill to increase by 2 mills the tax on the capital of manufacturing corporations. The Committee on Picture deserves special mention for their good work in securing the photographs of the members and having them so artistically grouped in one large frame. The committee you sent to Washington to attend the Reciprocity Convention, I believe, did good service, not only to our association, but to the country at large, as it now seems certain that a department of commerce and manufactures will be established, which, in the very nature of things, will materially aid our merchants and manufacturers in their proposed competition with the nations of the world.

A number of gentlemen have addressed you on different subjects during the year, and many of our own members have given us valuable information at different times, especially at the February meeting, where the statement was made by a member that by bogus letters and telegrams, supposed to have been sent to the house

by one of their travelers, his firm were swindled out of $75. It is a fact that since that information was given us it saved at least one firm represented here many times the price of a year's membership in the association. No case has arisen between any of our members or members and outsiders that has called for arbitration during the past year.

I deeply regret that in the last year we lost by death two of our prominent members, William D. Supplee and Charles M. Ghriskey. The photographs which we now have of them will ever remind us of their noble qualities and the good work they did for this association.

We were also called, in conjunction with our fellow citizens, to mourn the death of our beloved President, William McKinley, whose demise was caused by the hand of an assassin. I assure you, gentlemen, that the last event was to me simply horrible, he being the third President of our Republic who suffered death by assassination since I attained my majority. I beseech you to ever impress on your lawful representatives the necessity of enacting legislation which will tend to prevent such monstrous crimes in the future. Our Government, in the language of Lincoln, is of, for and by the people, and if we hand it down to our children unsullied this and similar organizations will flourish and prosper.

Permit me in conclusion to thank you from my heart for your good will and able assistance rendered me in the discharge of my duties.

Minnesota Retail Hardware Association.

The annual convention of the Minnesota Retail Hardware Association will be held in the Ryan Hotel Annex, St. Paul, February 26-28. Among the papers which will be read during the meeting are the following:

"Possibilities of Trade Organization," by T. T. Bacheller.

"Talk on Insurance," by C. A. Hatch.

"The Three Essentials," by P. W. Lyon, Minneapolis.

"Advertising," by M. De Motte, St. Paul.

Besides the papers there will be many other interesting features, so that a pleasant and profitable time is promised to those who attend the meeting. It is suggested that the convention will afford a vacation period at a time of the year when the merchant can leave his business under the most favorable circumstances and thus freshen up his mind for the activity consequent upon a heavy spring trade. A fare of one and a third has been secured over all railroad lines in the State, on the certificate plan. Tickets will be good three days before and three days after the convention. Further particulars in regard to the meeting may be obtained from Thomas McCracken, secretary of the association, whose address is 323 Boston Block, Minneapolis.

North Dakota Retail Hardware Association.

The North Dakota Retail Hardware Association has just issued its souvenir programme for its fifth annual meeting, to be held in Fargo on February 19 and 20. The programme is a book of nearly 200 pages and is attractively printed in two colors. It is certainly the largest and most impressive programme yet issued by a Hardware association. The special feature of interest in the book is the presentation of portraits of a large number of officers and prominent members of State Hardware associations throughout the country. A list of the different State retail associations is also given, together with the names of the present officers and executive committees, so that the volume is of very general interest to those who are identified with the organization movement. It is well printed on paper of excellent quality and is very creditable to the association. A full list of the legitimate Hardware dealers of North Dakota is also presented, those who are members of the association being indicated by a star. An inspection of the list shows that the association embraces a great many of the merchants who are eligible for membership.

The programme of the convention shows that it will open on Wednesday forenoon, 19th inst., this session being devoted to welcoming addresses, appointment of committees, &c. In the afternoon papers will be read by H. B. Allen of Jamestown, on "Fakes and Fakirs, or Leg Pulling," and by H. F. Emery of Fargo, on "Some Difficulties Hardware Dealers Have to Contend With." As much of this session as may be desirable will be devoted to jobbers, manufacturers and their traveling salesmen for discussion of matters of mutual interest. At the Thursday morning session the president's address and secretary's and treasurer's reports will be presented. The final session will be held on Thursday afternoon, when papers will be listened to from O. A. Gallup of Edgeley, "One Way to Compete With Supply Houses;" from James McPhail of Langdon, "Dealers' Associations, Their Effect and What They May Accomplish," and from L. B. Hanson of Sheldon, "The Practical Hardwareman." The Question Box will be a feature of all but one session. Reduced railroad rates on the certificate plan have been arranged for, and it is hoped that a large representation of the membership will be in attendance. The official headquarters will be at the Hotel Metropole. C. N. Barnes of Grand Forks is secretary of this association.

The Indiana Retail Hardware Dealers' Association.

According to the programme of the third annual meeting of the Indiana Retail Hardware Dealers' Association, to be held at Indianapolis, February 19 and 20, headquarters at the Denison Hotel, the convention will be called to order on Wednesday morning, 19th, at 11 o'clock. At the afternoon session President W. P. Lewis will make his annual address. The remainder of this session will be given up to the reading of papers, as follows:

"Twentieth Century Conditions," T. James Fernley, secretary-treasurer of the National Hardware Association.

"Hardware Store Arrangement," J. D. Warren of the J. D. Warren Mfg. Company, Chicago.

"Window Display and Art of Selling," H. W. Beagle, Rochester, N. Y.

"Up to Date Hardware Advertising," H. P. Townley, Terre Haute, Ind.

Wednesday evening a smoker will be tendered the association. Thursday morning's session will be of an executive character, during which private association matters will be discussed. The report of Secretary-Treasurer M. L. Corey and a paper by Wm. C. Powell of Converse, on "Illegitimate Competition," will be read. The Question Box will also be dissected. At the closing session in the afternoon Chas. H. Shirley of New Orleans will present a paper, entitled "Indiscriminate Selling," and reports of the Committee on Insurance and other committees will be read. M. L. Corey, Argos, Ind., is secretary of this association.

ARTHUR B. CLARKE has resigned his position as secretary and treasurer of the Old Dominion Iron & Nail Works Company, Richmond, Va. Mr. Clarke went with the company nearly 30 years ago, when they were a much smaller concern than now, and grew up with them, occupying several positions of trust and responsibility, and on the death of the late R. E. Blankenship, in 1888, was elected to succeed him as president, which office he filled till last October. About that date a majority of the stock of the company changed hands, and Gifford V. Lewis was elected president, and Mr. Clarke secretary and treasurer. Mr. Clarke's resignation was accepted at a meeting of the Board of Directors, and a committee was appointed to present resolutions of thanks to him for valuable service rendered. Mr. Clarke has not made any arrangements as yet in regard to his future movements, but it is not likely that he will remain long idle. He is in the prime of life, and has the confidence of the community. The gentlemen who succeed Mr. Clarke are J. B. Carter, as treasurer, and H. R. Wayt, as secretary, who have been appointed by the president, and will no

doubt be duly elected at the next meeting of the board. Both of these gentlemen have been with the company for several years.

NOTES ON FOREIGN TRADE.

BRITISH LETTER.

Offices of *The Iron Age*, Hastings House, Norfolk St., London, W. C.

The Hardware Market.

A NOTICEABLE feature during the past week has been the increased export of Hardware and allied goods to South Africa. Among other shipments may be mentioned $14,055 worth of Electrical Materials, $10,560 worth of furniture, 74 cwt. of Hardware, $2675 worth of Cycles, $6350 worth of Machinery to Durban, and a variety of small Hardware materials to Cape Town, Durban, East London and Zanzibar. An English export house has just received a letter from one of their agents in Johannesburg, dated December 21, from which I quote the following:

> Business outlook now much brighter, and have reason to believe that the turn of the year will show a marked increase of business through a much more general starting up of the mines. The native labor question is now more hindrance than the guerrilla war itself, and, of course, it will retard a full return of our former activity for some time yet, but I feel very much satisfied that we will have at least a more general resumption of work everywhere about this district to the full extent that the native labor supply will allow, as the military now seem to regard the other conditions more favorable than at any time in the past.

Large quantities of Hardware and metal goods are again being forwarded to Australia, as, for example, $2500 worth of Gunpowder, $325 worth of Cartridges, $2850 worth of Cordite, $1600 worth of Fuses, $6050 worth of Geligite Dynamite, &c., $3850 worth of Cycles, $780 worth of Fishing Tackle, 10 tons of Iron Ware, 24½ tons of Iron Goods, $11,405 worth of Telegraph Wire to Melbourne; $1765 worth of Cutlery, $1110 worth of Cycles, $490 worth of Plated Ware to Adelaide; a quantity of Cartridges and Mining Machinery to Perth, Western Australia; $1350 worth of Cartridges, 28 cwt. of Brass Manufacturers, 58 cwt. of Hardware, $550 worth of Implements, $8650 worth of Machinery, $700 worth of Plated Ware and other articles to Sydney; $500 worth of Implements, $100 worth of Machinery to Wellington, New Zealand; these are indicative of the class of goods at present being forwarded to Australia. On the whole, however, the largest shipments during the past week have been to Indian ports, such as Calcutta, Bombay and Madras. To Calcutta was sent a number of Crucibles, 8 tons of Iron Ware, 1 ton of Iron Nails, 1 ton of Screws, 18 tons of manufactured Steel Goods, 147 tons of T Lead, $465 worth of Agricultural Implements, $1285 worth of miscellaneous metal goods, $1115 worth of Plated Ware, $5460 worth of Electrical Materials. Similar shipments went to Bombay and Madras. Imported Hardware during the past week has, on the whole, gone in favor of Germany, although among goods received from America are Pulleys, Bicycles, Wringers, Tinware, Sewing Machines, Iron Pipe, the "Menominee" from New York carrying no less than 1671 packages of hard wood and metal ware. The "Cymric" brought over 75 boxes of Edged Tools, 16 packages of Lamp Ware, 142 cases of Hardware, 38 cases of Pulley parts, while the "Minneapolis" brought in the day before yesterday no less than 1000 packages of Oil Stoves and 1439 cases of Radiators. The home market continues stagnant, and the building trade is distinctly dull.

Returned from the States.

A. S. King, the British manager of the National Enameling & Stamping Company, has just returned from visiting his principals in the United States. After 12 months' experiment he is unusually hopeful of building up a big business in Stamped Ware and Enameled Goods in this country. He tells me that hitherto his chief difficulty has been to compete with the cheaper, unselected qualities of German Enameled Ware in white white and blue white. In grays he practically has no competitors, but his difficulty is to persuade the British buyer that for all practical purposes gray is superior to either of the other colors. The fixed rule of his company only to export selected qualities makes his initial efforts much more difficult, but immediately the reputation of his goods is established trade will be easier. Among some recent valuable contracts he has secured is one for a large number of Milk Cans for the Dairy Supply Company of this country. These Milk Cans, from the point of view of simplicity, strength and safety, are a distinct advance upon anything yet in the English market. A. S. King starts the coming year with hopeful prospects.

The Dangers of Cheap Enameled Ware.

The dangers of cheap Enameled Ware are gradually being brought home to the British consumer. Appendicitis is now becoming far too prevalent, and it is alleged in certain quarters that this is due to the increasing use of cheap Enameled Iron Saucepans and other Enameled Goods. Large quantities of these cheap articles are bought at what are called the "Sixpenny-halfpenny Bazaars" and are undoubtedly rubbish. R. H. Smith, the secretary of the Ironmongers' Federated Association, who claims to be something of an analytical chemist, has recently made some tests on four Enameled Saucepans. The first he purchased at a "Sixpenny-halfpenny Bazaar," the second was given away with a ¼ pound of tea for 7½ pence, the third and fourth were purchased from ordinary ironmongers and manufactured in Great Britain. A liter of distilled water was boiled down in each saucepan to an egg cupful, the remaining liquid transferred to a platinum crucible, evaporated to dryness, weighed and analyzed. It was found that No. 1 sample contained 12.4 grains per gallon of solid residual matter, and No. 2, 79.36 grains per gallon. The boilings from the British made Saucepans yielded no residue. The percentage proportion of the two cheap Saucepans worked out as follows:

	No. 1. Per cent.	No. 2. Per cent.
Silica	48.20	58.70
Lead oxide	36.84	Nil.
Tin oxide	Nil.	5.57
Soda and lime	14.96	35.73

The enamel on No. 2 sample, although not in itself bad, was so ineffectively laid on that, after the first boiling, quantities of it were detached in the form of sharp particles. It may be within the recollection of your readers that 12 months ago I reported an interview with a British merchant who desired to be put in touch with American Enameled Ware manufacturers. He received a number of replies, but in every case the price was too dear and the quality too good. After this it may perhaps be found that the recognized high quality of American Enameled Ware should make it a better marketable article.

The Latest American Invasion.

American Silver Ware is now the latest bugbear. The United States Treasury decision that silver goods sent to England to be hall marked and returned to America for further process of manufacture are not subject to import duty, has led many importers of fancy goods to consider how far they can for the future purchase American silver goods. The prominent silversmiths of this country scoff at the idea, but none the less there is a disposition to take the matter seriously, particularly in view of the cheapness and easy supply of silver in America. One firm state that the Americans have not yet acquired the British secret of hardening their silver goods, which at the present moment are too soft, and consequently less durable. Colonel Bingham, the managing director of the well-known firm of Walker & Hall, Sheffield, has expressed the opinion that Americans will be unable to create a taste for goods in England, because their designs are too coarse for the English taste. However, what is bothering the English firms just now is that a distinctive hall mark shall be given to American goods. Colonel Bingham, for example, is par-

ticularly anxious that the "line" mark shall be retained for English made Silver Ware. The English law dealing with the matter is summed up in the 39 and 40 Victoria, which says:

> All Gold and Silver Plate which shall be imported from foreign ports, and which shall be sent to any Assay Office in the United Kingdom, at which Gold and Silver Plate is now or shall at any time hereafter be by law required to be assayed, and which, when so sent, shall be then assayed, tested, stamped and marked, shall, in addition to the marks being used at such Assay Office for the purpose of marking British plate, be marked with the further mark of the letter F on an oval escutcheon, in order to denote that such Gold or Silver Plate was imported from foreign parts, and was not wrought or made in England, Scotland or Ireland: and the wardens and officers in such and every such Assay Office and the persons employed by them shall have power to impress and mark, and shall impress and mark, such further and additional mark, before such Plate shall be delivered out of the Assay Office.

The Goldsmiths' Company, it should be added, require Plate sent to them for marking to come from a registered firm. It is hardly thought that the Americans would have any difficulty in getting registered at Goldsmiths' Hall. It would be done as a matter, of course, provided the American firms complied with the Goldsmiths' Company's requirements.

American Trade Through Hamburg.

The growing influence of American commerce in Europe is shown very clearly in a return showing the imports by sea into the port of Hamburg during the years 1899 and 1900. As showing the relative importance of the oversea trade of the various communities with this great port, I have extracted the following figures:

	1899.		1900.	
	Cwts.	$	Cwts.	$
United Kingdom	60,471,197	103,148,805	71,396,588	111,360,785
Russia	10,787,417	17,398,110	12,291,278	22,302,550
United States	46,147,486	109,313,195	42,095,090	118,503,245
Argentine Repub.	6,215,125	24,012,700	7,674,290	27,010,045
Other parts of South America	14,980,677	57,448,305	15,401,780	65,831,930
British India	10,032,697	36,127,435	9,314,956	41,096,665

I have expressly inserted the figures from South America, although, of course, they are entirely composed of food and raw material. But the extent to which these purchases from South America are made by Germany naturally induces reciprocal trading, with the result that Germany is a strong factor in the Metal and Hardware markets in such countries as Brazil, Argentina and Chile.

Personal.

L. E. Spock, who is connected with the Strong & Trowbridge Company in London, sailed last Wednesday for a short business trip to America. As Mr. Spock has many business connections in the Eastern States and among furniture sellers further West, it may be of interest to know that he can be found during the next fortnight at the New York offices of Strong & Trowbridge. W. A. Green, the vice-president of this company, who has been making a long tour for something over a year in Australasia and the Far East, is at the present moment returning to London by way of San Francisco. He hopes to reach London during the first week in March.

INTRODUCING AMERICAN GOODS ABROAD.

ALBERT J. BARNES, manager of the New York branch of the Whitman & Barnes Mfg. Company, has just returned from a business trip around the world, begun nearly two years ago, to more thoroughly introduce the company's large and diverse product, as only a specialist is qualified to urge on the attention of foreign buyers American made goods in competition with well established wares of European manufacture. This company make large lines of Hardware, Tools, Agricultural Implements and Parts, Rubber Goods, &c., at their factories in Akron, Ohio, Chicago, and St. Catherines, Canada. They also have branch houses in five important American cities, as well as in London and Paris.

Cape Town, Cape Colony, he found to be more of a retail center than an outfitting point for large interior tracts, while Port Elizabeth, Cape Colony, he alludes to as the largest strictly wholesale town in South Africa, where the retail interests are comparatively small. In the latter city the wholesale dealers carry almost everything in Hardware, Machinery, Agricultural Implements and Tools, dry goods, provisions, "Kaffir truck," such as beads, blankets and trinkets, to please a half civilized people, in the same category being large quantities of second-hand clothing and shoes made up into bales and sent out from England. From this point the northern part of Cape Colony is supplied, as well as the lower portion of the Orange River Colony, and is also a large market for ostrich feathers.

The upper part of the Orange River Colony is supplied from East London, a port further up the east coast of South Africa, part way to Durban. East London does some retail business with the surrounding country, a great many goods being distributed by ox wagons.

Durban is the main port of Natal, a large part of the Johannesburg traffic going through it. A good deal of tea is raised in the vicinity of Durban.

Of the ports mentioned Cape Town has a good harbor, but Port Elizabeth, East London and Durban freight is unloaded from an ocean anchorage into lighters and so freighted to the cities. Passengers from the mail boats are swung in groups of four or five over the side in a basket onto small tugs.

Mr. Barnes anticipates a largely increased market for American goods in South Africa when the war is ended, but buying now is largely from hand to mouth. In his earlier visits on this trip he found that many goods of American make that the army could use were being bought up for army use, the market frequently being cleaned out of various lines for that purpose. As the prosperity of the country is largely dependent on the mines, trade is prosperous when the mines are in full operation and depressed when their working is interfered with.

There are no fine buildings, with the exception of Government buildings, to take fine Builders' Hardware. They take American Planes, Saws, Hammers, Axes, Handles and various kinds of wood work. In his opinion we should get more Shovel business than we do. We get a fair share of the Lamp business. Edward Miller & Co. being prominent in this class.

There is much criticism of our packing so far as the outside covering or case is concerned. Boxes are not strong enough for such a long journey and rough handling in lightering from a large ocean going vessel in a sea way, as referred to above. Certain kinds of goods, however, are better packed than those from Europe. Dealers there praise our system of attractively putting up goods in original packages, as contrasted with paper wrapped articles which do not look so well on the shelves or keep their contents in such good condition. Stronger boxes and cases for the outside covering would save a good many claims. The English and Germans as a rule surpass us in the stability and character of their packing cases.

Some of the other countries visited by Mr. Barnes were the Hawaiian Islands, Australia, Tasmania and New Zealand, he having returned to South Africa and other points after the original call.

SARGENT & Co., New Haven, Conn., and 149-153 Leonard street, New York, are circularizing the trade with a mailing card of stiff board, 10 x 4 inches, in 20 different printings and as many colors, calling attention to their Gem Food Chopper. On one side is printed one each of some of the recipes in their "Gem Chopper Cook Book," just issued, together with an illustration taken from the same series. In this connection they are also issuing for the trade illustrated slips for envelopes, 5¾ x 3¼ inches, light green one side and orange on the other, on each of which is a recipe and space for the imprint of any dealer selling this Chopper.

Davis & Barr have opened a Hardware store at Morgantown, W. Va. They were both formerly employed by W. H. Bailey.

Letters From the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

The Prices of Shovels and Spades.

From a gentleman prominently connected with Shovel interests we have the following communication referring to the prices of Shovels and Spades as compared with those which prevailed some time ago:

It may be well to correct a misunderstanding that prices on these goods rule higher than in past years. Not only the Hardware trade, but many persons were induced to engage in the manufacture of these goods under this belief. The facts are during the panic years certain manufacturers placed on the market a lot of low priced, trashy Shovels at less than cost. Price of these goods, not quality, led to this belief, although their sale was soon discontinued and better goods offered in their place. To illustrate more fully. Could Oliver Ames & Sons Corporation, the largest manufacturers of Shovels and Spades, hold their trade, were their prices out of line with other makers? Yet to-day their various brands net the trade no more than in past years, regardless of advance in material, and the same is true of prices of all other standard makers.

Defective Goods

The following communication from a New York house touches on a question concerning which they desire suggestions from the trade:

Kindly present this question in the columns of *The Iron Age* to decide an argument, viz.:

A dealer bought a Combination Plier, which was not warranted. He made a sale of it to a customer who tried it in his presence and it snapped in two while handling it. The dealer gave the customer another Plier in place of it, and later on called upon the house he had bought it of to replace same, and they refused upon the ground that the article was not warranted. The dealer claims, notwithstanding the fact that the article was not warranted, that no matter how cheap the article is it is meant to be used a few times for the purpose for which it is intended, and when at the first attempt to make use of the article it breaks, that it is not even up to the standard of an unwarranted article, and should be replaced by the wholesaler. The wholesaler claims that when a buyer purchases a Tool without any warranty he is supposed to assume all risks, and therefore declines to replace the article in dispute.

The Plural of Tailors' Goose.

The question of the plural of Tailors' Goose has aroused a Hardware poet in Michigan, who expresses his opinion in the following interesting verse:

I'm free to confess that I can't see the use
Of the question you ask regarding a Goose.
If you send for one Goose, and another, 'tis plain
Whoe'er gets the order will never complain.
If you order two Gooses, it seems plain to me
That none but a gander would ever send three.
If you write for two Geeses, what could they do
But fire the things that you order at you.
Ring the neck of the goose, let the argument cease,
For the plural of goose must ever be geese.
For more than one man we must ever say men,
Tho' all may be geese if you goose question them.

CAT.

Keeping Track of Unfilled or Partly Filled Orders on Manufacturers.

We are in receipt of the following inquiry from a wholesale Hardware house in regard to a good system in connection with their buying department for keeping track of all orders still unfilled or only partly filled. This is a matter of a good deal of general interest and we hope that the appeal of our correspondents will call out a liberal response from houses whose methods in this regard are satisfactory:

We are looking for a good method of ordering—some system whereby we could keep good track of all orders still unfilled or only partly filled. At present we are using the carbon sheet system, but these are handled so much that they go to pieces on the file, more especially in the last few years, when it has been so hard to get goods. Another objection to this is that in a large business these files are apt to get so bulky before they can be removed.

We will be very much pleased if you will take this up with some of your larger subscribers and let us have the information at your convenience.

Polishing Plate Glass.

A correspondent in Missouri desires information in regard to the best method of polishing Plate Glass windows. The subject is referred to our readers.

Suggestions in Regard to Invoices.

The following communication is from a wholesale house in Pennsylvania, and suggests a change which, in their judgment, should be made in the location of the date of invoices:

We beg to offer a suggestion to the readers of *The Iron Age*, and think it is entitled to consideration. It is that the date on an invoice head be so arranged that it will not be located at the top of the invoice. A great many dealers use the Shannon style of letter file, and the perforations invariably come where the date is, very often cutting out the day of the month, or the month itself when a figure representing the month is used.

Another thing: There should be a space on the invoice to enter customer's order number, as many dealers are now using number system of orders.

If you feel disposed to have this matter considered in your publication we shall be pleased.

TOWNLEY'S ADS. NO. 3.

WE reproduce herewith one of the advertisements contained in the collection of Bicycle advertisements to which reference was made in our last issue as published by H. P. Townley, Terre Haute, Ind. The book contains 50 different advertisements of various

H. P Townley's Ads—No. 3. Terre Haute, Ind.
There's None Just as Good
Others cost less because worth less.
Come in and let us show you wherein the ..... Bicycle excells all others. We can convince you.
(HERE INSERT DESCRIPTION & PRICE)

Specimen Advertisement, Reduced Size.

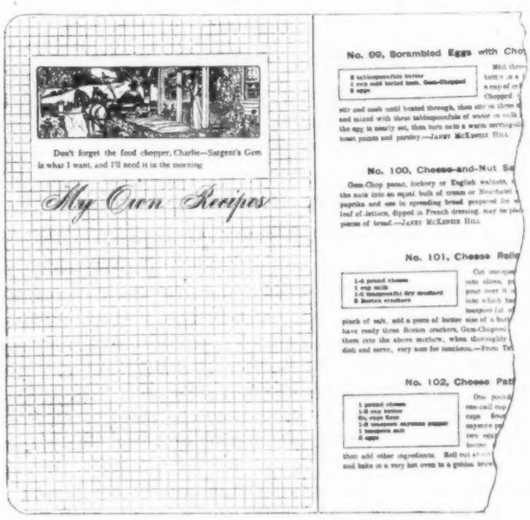
styles, which have been used in his business with satisfactory results. The advertisements are printed, one on a page, most of them being illustrated. They are designed for the use of merchants, and blank spaces are left at the bottom of each advertisement for description, price and other matter relating to the goods and name of the advertiser. The price of the book is 50 cents.

THE INDIANA EDGE TOOL COMPANY, Gas City, Ind., advise us that they are now manufacturing Axes at the rate of 4000 per week, and expect by April to increase

their output to 6000 per week. They have put in the latest improvements for making Axes, and are in shape to make all grades and qualities, as their line includes all the varieties regularly called for by the trade.

"GEM CHOPPER COOK BOOK."

SARGENT & CO., New Haven, Conn., and 149-153 Leonard street, New York, have just issued for gratuitous distribution the "Gem Chopper Cook Book," to be used in connection with their Gem Food Chopper, Nos. 20, 22 and 24, having a cutting capacity per minute of 2, 2½ and 3 pounds respectively. It is a cloth covered and copyrighted book of 96 pages, 7 x 4½ inches, containing a total of 207 recipes for substantial dishes and dainty desserts for preparation through the medium


Don't forget the food chopper, Charlie—Sargent's Gem is what I want, and I'll need it in the morning

My Own Recipes

No. 99, Scrambled Eggs with Cho

No. 100, Cheese-and-Nut Sa

No. 101, Cheese Rolls

No. 102, Cheese Pat

Fac-simile Reproduction from Gem Chopper Cook Book.

of this Chopper. Many of the recipes have been especially prepared by Janet McKenzie Hill, editor of the *Boston Cooking School Magazine* and a regular contributor to the *Ladies' Home Journal*, while the others have been selected from several accepted sources, the name of the author of each being given with the recipe. An interesting feature is that at frequent intervals a page, quadrille ruled, is left for the incorporation of the individual's own recipes, so that they are always conveniently available and properly classified, a portion of two pages being here reproduced. At the back of the book is a table of cooking measures and an index to the various classes of dishes.

DEATH OF JOHN B. VARICK.

JOHN B. VARICK, president and treasurer of the John B. Varick Company, Manchester, N. H., died February 8, at his home in that city, after a long illness. He was a member of the National Hardware Association, about 70 years old, and one of the prominent and foremost merchants of that State. At a meeting of the New England Iron and Hardware Association, held in Boston on Monday, February 10, to take action on his death, President Allen J. Chase appointed Samuel A. Bigelow, Charles E. Adams and H. C. Dodge a committee to draft suitable resolutions. The following were selected to attend the funeral as representatives of the association: J. P. Cutter of Dodge, Haley & Co., C. C. Adams of Sargent & Co., and E. L. Haley, clerk of the association.

Samuel Pickenpaugh and J. Thornton Kern have opened a Hardware store at Morgantown. Mr. Pickenpaugh was formerly in the Carriage business. Mr. Kern has been connected with E. Shisler for a number of years and his long schooling under Mr. Shisler will be of much benefit to the new firm.

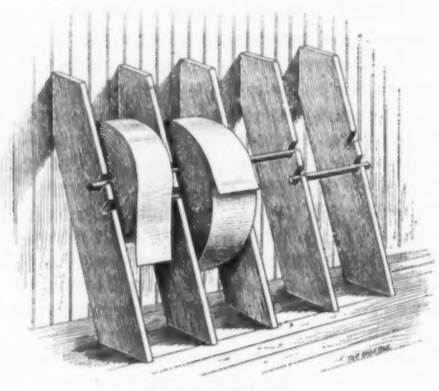
EIGHTH ANNUAL SPORTSMEN'S SHOW.

BY the last of January all the available space for trade exhibits at the eighth annual Sportsmen's Show, given under the auspices and management of the National Sportsmen's Association in Madison Square Garden, New York, to be held March 5 to 19 inclusive, was disposed of, and the manager, J. A. H. Dressel, has been compelled to notify several prominent exhibitors at former shows that no exhibition space remains unsold. This is unprecedented in the history of the Sportsmen's Show in this city, and closes up the question of space five weeks in advance of the opening. A model of the spectacle which will occupy the great central space of the amphitheater, on a scale of 1 to 48, has been perfected by Edward C. Unitt, scenic artist for the Frohmans. In addition to the woodlands and glimpse of the Adirondacks, and mountain scenery depicted on the great drop curtain, there will be at the foot of a ravine an old mill, its moss grown wheel revolved under pressure of a cascade that pours over a ledge of rocks and eventually finds its way to a stream that winds about the wooded island in the center of the space. Inquiries from sportsmen as to the fly casting contest are being referred to David T. Abercrombie of D. T. Abercrombie & Co., 2 and 3 South street, New York, who, with other well-known fly casters, has this feature in charge. Among the game birds exhibited will be many beautiful specimens from the private collection of George A. Barker. Notable among his specimens will be seen trained live decoy birds, both ducks and geese.

An innovation at the show this year will be the Junior Branch of the National Sportsmen's Association, which will have a camp at the base of the Adirondacks, as reproduced in the garden. Youngsters from many of the well-known private schools for boys in New York will be present and in charge of a Physical Instructor. The lads will be trained as guides, and will pilot parties of visitors through the "deer trail" leading from the camp off over the mountains to "Observation Point," a ledge of rocks high up among the crags, from which a fine view of the entire exhibit may be had. After a pause at that point the guides lead their charges down the mountains and back to the camp. Besides the view afforded, deer will be met with *en route*, as should be the case on all live "deer trails." Specimens of game killed by the boys while at the camp at real headquarters in the Adirondacks will be exhibited in the cabin, and Jocko, the camp monkey, will this year play the part of chief guide for the outfit.

RACK FOR BELTING.

A CONVENIENT rack used for holding Belting in the Hardware store of Jordan & Bros., Willimantic, Conn., is shown in the accompanying illustration. The boards are securely fastened to the floor and the


Rack for Belting.

side wall, and so notched as to receive rounded pieces of wood that have been passed through the cores of the rolls of Belting. It will be noticed that there are two notches in each board, so that the different axles will not interfere with each other. The rack is neatly varnished, making the finish in keeping with that of the side wall.

SHOW WINDOW DISPLAY.

The trade are invited to contribute information in regard to methods which have proved satisfactory, with descriptions of attractive displays. Inquiries also are solicited, to which careful attention will be given.

MARKING PRICES IN WINDOWS.

Opinions of Hardware merchants vary greatly as to whether it is the best business policy to mark prices on all goods in the show window, to leave them unmarked, or to make occasional use of price cards, generally when new goods are shown or a cheap sale is in progress. Many communications have been received from the trade in which arguments are presented in support of the different policies:

FAVORABLE TO MARKING PRICES.

Printed below are extracts from letters that have been received, and are favorable to pricing goods in the show window:

Prices Make Customers.

A Vermont merchant writes: Where the price is marked on goods in the window it has a tendency to attract attention and make a customer who might otherwise not be obtained.

Sales Increased.

A firm in one of the prosperous cities in Southern Connecticut say: We have been in the habit of putting quite a line of goods in the windows, and many times of putting prices on the goods. This, we are sure, has increased sales.

Plain Prices Sell Lots of Goods.

The experience of a Georgia house is as follows: We mark prices in plain figures on all goods displayed in our windows, and these price cards sell a lot of goods for us while we are busy waiting on other customers.

Window Incomplete Without Prices.

A very enterprising Minnesota merchant writes: I do not think a window display is complete so far as its earning capacity is concerned unless one has priced all or the greater part of the goods therein.

Price All Goods.

From an Illinois house, who give their show windows very careful attention, comes the following experience: It is a great advantage to mark all goods in the window with prices so that passersby can know the price of each article. Oftentimes a person will stop and look at articles in the window and wonder about the price, but will not care to buy just then, and will not care to bother the storekeeper to inquire about the price, while if priced, he would often find it so much lower than he had expected that he would come in and make a purchase then. I think it is by far the best to put prices on all goods placed in the window. When we first commenced putting prices upon window displays we were very much surprised at the increase in the number of sales in the lines. Since then we have made it a point to put the price on all goods shown in our windows.

Does Not Make Price Prominent.

A Connecticut firm writes: We usually tag goods with price, but do not display the price prominently. Do not think it counts for much unless the goods priced are offered below the regular figure.

A Great Advantage to Mark Prices.

An Iowa concern say: We believe it a great advantage to mark prices on every article displayed, as oftentimes a passerby will stop and purchase something that he would have considered beyond his reach had the price not attracted his attention.

A Man Hates to Price Goods.

A dealer in a suburb to a large Wisconsin city says: In such lines as Cutlery, Lamps, Tools, &c., I have found that a display invariably brings increased sales. If a man wants a Pocket Knife or a Razor, he would not like to come in and price the articles in question before buying, but if you display the articles tastefully with a reasonable price attached, he would know before he stepped into the store what to pay for it. This applies with equal force to other articles.

Increases Sales.

A Hardware merchant in a Massachusetts city writes: I think it increases the sales of goods very much to put price cards on them.

Pr ce Every Article Conspicuously.

A Minnesota merchant who has a well earned reputation for effective window displays writes: A window display without price cards is like a deaf and dumb salesman. No merchant will get full returns for his window work unless he has every article conspicuously labeled with a neat price card.

Prices Goods in Window and in Entire Stock.

The following extract is from an Illinois merchant who is very progressive and enterprising: We are great believers in attaching prices to not only window displays, but goods throughout the entire stock. We carry this idea out in our newspaper advertisements, circulars, &c., and results obtained have led us to believe that our position in this matter is right.

Quicker Results.

A Michigan dealer says: We find results more satisfactory as to quick results when prices are put on goods, but they must be very low prices.

MARK PRICES OCCASIONALLY.

Below are given some expressions of opinion from merchants who favor the occasional use of price cards in the show window:

It Depends on Goods Displayed

An Iowa merchant, well known for attractive displays and good newspaper and circular advertising, writes: I believe in putting price cards on goods when practicable. The American people are curious to know what a thing costs, and prices are always attractive. It is not always advisable to do this, depending somewhat upon what is being displayed.

A Disputed Question.

The Indiana house writing the following has not as yet settled the question of marking goods in the window: We have tried marking the price in plain figures on goods in the windows, although we do not do it all the time. This very thing is now being discussed by ourselves and clerks, and while we have varied opinions in the matter, the writer thinks that marking goods is a success.

Fear Competitors.

A Hardware firm in Illinois say: We mark prices in windows less than we should. Can't get out of the old ruts, fearing our competitors might see them.

Prices on Superior Goods Drive Away Cheap Trade.

The argument of a Michigan house is worthy of consideration. We do not mark prices on goods displayed except in the event of some special sales, because we often display Tools or other goods of superior quality, and customers who desire cheaper goods would not always understand the quality of goods by a mere glance at

the window, without a visit inside. Thus priced goods would drive away a certain class of trade.

Mark Only Job Lots or Old Stock.

The opinion of a large Kentucky merchant is of interest: I do not believe that it is a good idea to mark any article for the benefit of your competitor, unless you have purchased an article selling below the market price, some job lot, or unless it should be an old stock you wish to get rid of. Then mark it, otherwise keep all such information to yourself. It is not necessary to tell a man that you will sell him a $5 article for $1, because he knows that you are lying. It gives him a bad idea of you at the start and he will not place any confidence in you. Customers have just as much sense as merchants and you cannot fool them into doing business with you. A very pretty way to attract in the way of cards in a window is to simply arrange some small fancy cards at different positions in the window scattered through the goods, slanting on an angle of 45 degrees. This attracts attention to a window and shows no price. If there is anything in the window that is attractive to your customer he will certainly open your door and ask about it. The price will scarcely ever attract him before the article attracts him, and pricing articles in the window only causes trouble. For instance, last summer a merchant marked articles in his window, and put a large advertisement in the papers calling attention to his window and the exceedingly low prices displayed there. His competitor put a stand of the same goods on the sidewalk a few doors below him, at a price of 25 per cent. below his. The consequence was the first man was snowed under and has been ever since on that one article. He has never displayed it since, and the other man has the run. Prices kept in the head are better than on pasteboard.

Very Seldom Mark Prices.

A Tennessee house write: We very seldom use prices in our windows unless we are making a special sale of some line of goods, or unless on goods we have the exclusive sale of. The display if properly arranged will catch the eye of the prospective buyer, and if interested he will call. Then you have a much better chance of selling him than for him to stand and make up his mind to buy without your aid.

Think It Pays to Mark Most Lines.

An enterprising New Jersey house write as follows: In regard to price marking we let the line of goods decide that. It is not advisable to our mind when making a display of fancy Builders' Hardware to mark prices, but on the other hand most goods if neatly marked with a printed tag telling the price will sell better than the same goods unmarked. Still that is a question which local trade conditions will best answer for itself. We mark more or less prices on the greater part of our displays and think that it pays.

Only Mark Specials.

A Colorado firm say: We do not regularly mark prices on goods displayed in windows, as by so doing I would offer a too valuable cue to the competitor. We occasionally dump some specialty *en masse* into a window, marking it at a low pressure, but such lures should be frequently withdrawn, as they cease to be "special" sales when they become common.

Mark Prices on New Lines and Cheap Goods.

A Pennsylvania firm say: If the article displayed is something new, or if the price is a low one, we mark the price on the article in plain figures.

Avoid Marked Down Signs.

The advice of a Massachusetts house is worthy of consideration: Not always but frequently do we mark prices on goods in windows. Avoid such signs as

Was $——

Now $——

especially during January and February, as this is a worn out issue. We found on a recent inspection of our street but two windows not containing a marked down sign of some kind.

Mark Specials.

A Western New York Hardware firm state their practice as follows: We do not mark prices on staples, but always do on specials. On these we allow a good margin, and sell what we have left over as seconds at a good price. We do not always win, but average all right.

Mark Prices on Staples.

A dealer in Eastern New York adopts a policy quite different from the foregoing. He says: I mark prices on some things that the public is familiar with, such as Padlocks, Hammers, Pans, Knives, Wringers, and goods of standard makes, but if I have a special article, or one that has some special feature that requires an explanation, I never mark the price in the window, but place on it a small card reading something like this:

> **The Latest Thing in Sprayers!**
> **Step in and Examine.**

Ticket Specials.

A Detroit firm say: If we have any special line to offer we ticket the goods, otherwise not. We prefer to have people come in and ask price on novelties.

Prices Usually Compared with Department Stores.

A Hardware house in Vermont write: We do not much favor marking prices except for some special articles, as prices are compared with department and 5 and 10 cent stores, which usually carry the poorest Hardware they can obtain.

Only on Special Occasions.

From a Missouri merchant comes the following: I have never believed in marking prices on displays except on special occasions, for a new article or on goods I want to close out. The best advertisement is to keep goods clean, well in order, knowing always where every Screw and Nail can be found.

Seldom Mark Prices.

In a letter from a Western New York city is the following: We seldom mark goods on window displays. A well dressed window will draw the intending purchaser inside the store, where the good salesman does the rest.

OPPOSED TO PRICES IN WINDOWS.

The following extracts are from merchants who believe it wisest to omit prices from the goods displayed in their show windows:

An Attractive Window Brings Inquiries.

The following are the theories of a North Carolina Hardware house: We have not made it a rule to mark prices on goods in windows. We think the question has considerable argument for either side. We have thought that the possible cutting from competitors and consequent demoralization in profits have more than overbalanced the possible sales being made on account of prices being attractive. Another view of the matter is that customers would wonder where articles were priced particularly low whether they were simply leaders. We do not think if a window is attractive that customers will fail to inquire for prices, and in this way they are brought actually into the store.

Honorable Competition—Friction Avoided.

A pleasant relation exists between the Hardware merchants in an Ohio town, as gleaned from the following extract: We never mark prices on goods in windows. This, however, might be advisable in some

towns. Having only honorable competitors here, we avoid anything that might cause friction with our neighbors, whom we believe are our friends as well as our competitors.

Do Not Give Competitors the Advantage.

An Illinois Hardware firm write: We do not as a rule mark prices, as we can handle our trade better on the inside, and do not give our competitors the advantage of knowing our prices.

Half the Sale is Getting Customers in Store.

A Pennsylvania merchant says: We do not mark prices on goods displayed in show windows. We would rather have customers come into the store and inquire the price. Half of the sale is to get the customer into the store.

Mark Prices Only in Large Cities.

Below is given the theory of a house in a small city in New York State: We do not mark prices in the window. The display should bring them into the store, and then other sales may be made. I believe the modern way is to price goods in windows, but in small towns and cities that method is not used as much as in the large cities. People in the large cities have less time to shop and buy quicker.

Prices Keep People Out of the Store.

A successful and progressive Pennsylvania merchant says: Prices should not be put on goods in the window because they have a tendency to keep people out of the store. On the other hand, if a person comes into the store to price something seen in the window he may buy something else, even if the article that originally attracted his attention is not sold.

Will Investigate if Interested.

The argument of a Pennsylvania house is given below: We do not mark prices. Our opinion on that is that if anything shown is needed, those requiring it will, on seeing it, at once investigate, and if not satisfied with what they called for will find something else, thereby accomplishing what is desired.

Goods Properly Displayed Bring People in Store.

The theory of a Minnesota merchant: We do not mark goods put in a window in plain figures. We think that goods properly displayed will bring people into the store to ask the price of the article they are interested in. You know then that he or she is ready to buy, or will be when the time comes to use the article. You can then show them the article and nine times out of ten bring out points that they cannot see, and a great many times sell the article there and then.

Fear a General Cut.

A dealer in the Province of Quebec writes: We do not put prices on goods in the window unless we are sure our competitors have not got the same goods, because we are all on the same street, and it would mean a general cut if we displayed prices.

Get Acquainted with Customers When They Inquire.

The following is the theory of a Massachusetts merchant: Ordinarily we do not mark our goods in the windows, preferring to have our patrons come into the store to inquire, to meet them and explain our goods and prices. We may be able to show them something they have not seen, and in that way get better acquainted.

Goods Require Explanation.

A concern in New York State say: We do not mark prices on goods displayed in show windows, for we prefer the customers to come into the store and ask prices, which will give us a better chance to sell them. Of course, Racket and Fair stores are placed in a different position, for their forte is keeping a cheap line of goods whose prices tell better than quality. The average person cannot tell without close inspection and a little explanation from the salesman the difference between the superior and the inferior article, for cast iron is polished and nickel plated so as to look as good as the best steel when seen in a show window.

PRICE-LISTS, CIRCULARS, &c.

THE BILLINGS & SPENCER COMPANY, Hartford, Conn.: 1902 catalogue of Drop Forgings for vehicles. They call special attention to their large and complete line of Forgings for "bike" buggies. These Forgings are referred to as made from the best quality of material and as of the highest grade. They also direct attention to their Automobile Forgings, and to the fact that they make Special Drop Forgings of all descriptions in iron, steel, copper, bronze, &c.

THE KEYSER MFG. COMPANY, Chattanooga, Tenn.: Catalogue of the Odorless Refrigerators, made in 86 styles for family use, hotels, grocers, restaurants, butchers, &c. The catalogue describes the principles on which the Odorless is made and directs attention to the special features of its construction. The catalogue is accompanied by a circular in which their new Colonial Refrigerator is treated. This construction is a new line this season, and is put on the market to meet the demand for a Refrigerator lower in price than the Odorless.

MANHATTAN WEATHER STRIP COMPANY, 298 Broadway, New York: Circulars giving price-lists and illustrations of their Manhattan Metal and Rubber Weather Strips and Manhattan Water Proof Cemented Wood and Rubber Weather Strips.

NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo.: Catalogue, February 1, 120 pages, relating to Bicycles, Sundries and Sewing Machines.

NEWHALL SHIP CHANDLERY COMPANY, 78 South street, New York: Postal circular calling attention to the fact that they manufacture all sizes of Anchor Shackles and carry in stock a full line of Chain Shackles.

FOREST CITY BIT & TOOL COMPANY, Rockford, Ill., Catalogue D, describing their line of Machine Tools, including Hollow Mortising Chisels, Hollow Chisel Bits, Machine Bits and Drills, Countersink Bits, Jennings' Brace Bits, &c. The company state that they have made a specialty of Machine Bits for over 12 years, and have doubled their capacity on account of the increasing demand for their goods. They are also manufacturers of Bell Hangers', Spoon Bits, fine Edged Tools and articles of twisted steel generally.

J. P. EUSTIS MFG. COMPANY, 96 North street, Boston, Mass., for whom Edward A. Grenzbach, 97 Chambers street, New York, is the representative in New York City territory, have issued catalogue D, entitled "The Brasscrafters," showing beautiful and complete assortments of Bathroom and Lavatory Accessories of cast and wrought brass, polished and nickeled. The company also manufacture special Brass and Bronze Statue, Structural and Grill Work.

THE UNION HARDWARE COMPANY, Torrington, Conn., New York office in charge of Tower & Lyon, 95 Chambers street: Catalogue of Roller Skates, showing a complete line, from the cheapest Sidewalk Skate up to the finest grade of ball bearing Skates, inclusive. Among the newer goods not previously catalogued are No. 5 Ball Bearing, Half Clamp, Rink Roller Skate; No. 6, of like construction, for women, and No. 12, Plain Bearing, Full Heel Rink Roller Skate for women.

WAYNESBURG PRESSED STEEL COMPANY, Waynesburg, Pa., advise us, notwithstanding reports to the contrary, that W. D. Forsythe is still connected with their plant as superintendent. They state that they are working night and day to fill orders and have lately added five new hammers and built an addition to their works so as to be able to keep up with the demands made upon them. They are manufacturing and delivering a full line of Shovels, Spades and Scoops and Ditching Tools, both plain and hollow back. Their output is 100 dozen hollow back and 60 dozen plain back per day.

Illinois Retail Hardware Dealers' Association.

THE annual convention of the Illinois Retail Hardware Dealers' Association will open to-morrow (Wednesday) morning at Decatur. The best meeting in the history of the organization is looked for, and a large proportion of the membership promises to be in attendance. Through the courtesy of the different gentlemen, who have favored us with advance copies, we are enabled to present the president's address, secretary's report and several of the papers which will be read at the meeting. In view of their subject matter, they will doubtless be of interest to other merchants than those for whose pleasure and suggestion they have been specially prepared.

President Cormick's Annual Address.

In presenting my annual address to this, our fourth convention, let me congratulate you on your apparent good health, the prosperity of your business and that death has not invaded our ranks.

While in the year past some sections of our State were

H. G. CORMICK, President.

visited by a drought that materially injured business locally, I think, taken as a whole, the State has experienced a good business year, and prices have been well maintained.

STATE ASSOCIATION.

Our State Association began comparatively a short time ago, and where the aims and objects have been fully set forth and a personal canvass made, the trade has been awakened to a lively interest, an increase in membership resulting.

In my own trips in the southern part of the State, with few exceptions, I found the dealers realized the necessity of a concerted action toward an effort to relieve the business of the many evils that have been the growth of years; and I am of the opinion that, if this missionary work can be kept up, by the time our convention meets in 1903 we will have most of the dealers of the State that are worth having as members.

In view of the prosperity we are now enjoying it is a question whether we can fully realize the necessity of an association; but when the reaction comes, as it is sure to, when the manufacturer and jobber begin to reach out for the trade that properly should be the retailer's, all can readily see what our organization can do to check this illegitimate competition. However, to the member who is a class student of events it is apparent that with the membership and resources at our command the results have been worthy of our efforts.

When was there a time that the members of this association were shown the respect and consideration by the people of whom they buy goods that they are at present?

Can any one remember a time when any manufacturer was anxious to cause the retailer to believe that he did not cater to the catalogue house and department store trade until now?

While these results have more than compensated the membership for the time and money expended in association work, yet we must not lose sight of the social pleasures and broadening influences of our annual meeting. Were there no other objects to be gained these alone would, in my opinion, pay the intelligent dealer many times for his expenditures.

If this work continues along the lines that are dictated by experience, with the co-operation of the National Association, it will not be long before the staple brands of goods will be found only in the hands of the retailer.

THE NATIONAL ASSOCIATION.

The Inter-State Association was organized in Chicago March 12, 1900, for the purpose of giving the work of the State Association a national influence. At the organization Indiana, Michigan, Missouri, Iowa, Kansas, North Dakota and Illinois became members. Since then Kentucky, Arkansas and Pennsylvania have been added, greatly increasing its strength and influence. At the last meeting in Chicago, March 6, 1901, to which Z. T. Miller and myself were delegates, the name was changed to National, and a new corps of officers elected, all of whom have given a large share of their time to the work and with scarcely any compensation.

You have learned through "The Bulletin" the effort that they have made to carry out the result of that meeting; much has been accomplished to harmonize interests that have heretofore been conflicting and will result in great good in the future. At this time it is in close touch with the National Hardware Association and the principal manufacturers of the country. From the former it has received co-operation in the adjusting of difficulties, and from the latter assurance of friendship and fair treatment.

Let me urge upon you the necessity of loyalty to the National Retail Hardware Dealers' Association, as without it the plans laid out cannot be successfully carried out. With a united membership the work of our National Association can be made to pay the individual member more fully.

In order that the State convention may get the full benefit of the National work, the National meeting should occur before the State meetings, so that the report of your delegates would be full of interesting topics; and that any decision that the National might need from the States could be had without a year's delay. I trust you will instruct your representatives to use their influence to bring this about.

ILLEGITIMATE COMPETITION.

While we still have the catalogue house and department store competition, yet much relief is in sight, in the fact that makers of some of the standard lines have assured our officers that this class of dealers will not sell their lines in the future; while others who are not willing to go so far have assured us that if they sell these people they will bind them by contracts not to sell the goods below certain prices.

In striving to alter conditions that now make this class of establishments popular, would it not be well to in some way stimulate the efforts of the noble societies that are in many cities endeavoring to punish the violations of the child-labor law, the iniquities of the sweat shops and to ameliorate the condition of those who labor for insufficient salaries, that high salaries may be paid to managers and low prices given to the public.

While this may appear to some as work thrown away,

yet such objections remind me of James Russell Lowell's lines on "Man's Work:"

No man is born into the world whose work
Is not born with him. There is always work
And tools to work withal for those who will;
And blessed are the horny hands of toil!
The busy world shoves angrily aside
The man who stands with arms akimbo set
Until occasion tells him what to do,
And he who waits to have his task marked out
Shall die and leave his errand unfulfilled.

As these conditions that surround us are the growth of years, much must be done to effect a change that merely promises to give good results.

As the natural law, "the survival of the fittest," seems to be in active operation in the commercial world, let each one of us see to it that we give to these concerted efforts the best that is in him, so that at no distant time the public will realize that the retail dealer is the "fittest" for survival.

RECOMMENDATIONS.

I would recommend that we unite with the other retail merchants' organizations to procure

A just Peddler's License Law;

A modification of the Bankruptcy Law;

And make an effort to retire the member of the late Legislature who supported the present garnishment law.

Also, that co-operative buying be investigated by a special committee and a report be made at our next convention.

Also, that this convention express its approval of the course of our National Association in trying to keep standard goods out of the hands of illegitimate dealers.

In view of the fact that the members of the National Hardware Association are our friends, I believe it would be to the interest of this association if each of our members would ascertain if the jobber of whom he buys goods is affiliated with the National Hardware Association.

From the results of experience I believe it would be to the interest of this association if each member, when he sees a staple article advertised at a cut price, would cut out the advertisement and write the manufacturer a courteous letter inquiring if they cater to that trade. Unless you have tried it, you will be surprised at the results.

SECRETARY AND EXECUTIVE COMMITTEE.

During the year the work of the secretary's office has been done with an unusual efficiency, energy and enthusiasm. At all times has Secretary Lott promptly responded to calls upon his time and finances to forward the interests of this association and he deserves the thanks and kindly consideration of every member. On occasions he has visited other cities to talk and work for our increase, and in each instance with marked success, as his report will show.

Your Executive Committee have had but one meeting during the year—December 11, in this city—but through the year have been of inestimable value to me by their letters on subjects submitted to them for their judgment. They have shown patience, forethought and ability in the conduct of their duties, and I would bespeak for them your kindly consideration.

The individual members with whom I have come in contact during the year have treated me with such kindliness that it is worthy of mention here.

The brotherly feeling of the membership at this time augurs well for our future, and I trust all will labor for its continuance and extension.

In conclusion, I hope, in the language of Henry Van Dyke, you will "be glad of life, because it gives you the chance to love, and to work, and to play and to look up at the stars; to be satisfied with your possessions, but not contented with yourself until you have made the best of them; to despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice; to be governed by your admirations rather than your disgusts; to covet nothing that is your neighbor's, except his kindliness of heart and gentleness of manner; to think seldom of your enemies and often of your friends; and to spend as much time as you can with body and spirit in God's out of doors; these are little guideposts on the footpath to peace," which I hope each of us will find in the end.

Secretary Lott's Annual Report.

A short synopsis of what has been accomplished from this office since our last annual meeting is hereby submitted.

The collection of annual dues was about the first thing undertaken, and has not been quite completed at the present time, although the list of delinquents has dwindled down to about 15. The amount owing has in every case been small, and probably considered of not great importance by some of our members, as the process of collecting annual dues has been slow and laborious. Three or four statements were sent to those who had not yet paid their dues, and finally upon order of the Executive Committee your secretary made sight drafts on members, resulting in nine being honored and seven returned, the members refusing to honor the same.

OBTAINING NEW MEMBERS.

In March your secretary attended several meetings of the State Legislature, in the interest of the Garnish

G. R. LOTT, Secretary.

ment Law bill then pending. While at Springfield we secured a number of new members; found the work of soliciting membership pleasant and easy, and had we been in a position to do more work in the line of personal solicitation we certainly should have devoted the time necessary, as it is the impression of your secretary that the only way we can ever obtain a membership such as we should have will be by a thorough systematic personal canvass.

In May your secretary was invited to attend a regular meeting of the Rockford Retail Hardware Dealers' Association, and while there received the applications of five of their members, and before returning home got new members from Belvidere and De Kalb.

The entire retail Hardware trade of this State has been communicated with by mail from this office several times during the year. The members of this association have received a number of official communications besides the regular quarterly bulletin of the National Retail Hardware Dealers' Association, informing them of what was being done.

GRIEVANCES.

Early in the year a grievance was presented by one of our members in Pekin against a certain Bicycle manufacturing concern. This matter was taken up with the manufacturer and satisfactorily adjusted without any difficulty. Later on a grievance was received from one of our new members of Springfield against a manufacturer of Gasoline Stoves. Your secretary was unable to adjust this matter. In fact, it was turned over to

the Grievance Committee for consideration and adjustment if possible. This committee has not reported to the secretary's office, but I presume it still has the question pending.

ASSOCIATION FINANCES.

The money necessary to successfully finance this association for the ensuing year should receive proper consideration before we adjourn. It has not been the policy of this association to accumulate money in the treasury. The officers on whom the management has been shouldered for the past year have cheerfully performed their duties regardless of what the loss to them amounted to before the expiration of their terms of office. In all new organizations similar to ours such experiences must be had, but sooner or later we must place the business management of this association on a more solid foundation.

SUSPENDING DELINQUENT MEMBERS.

Under our present laws we have no good form of procedude in suspending members who are in arrears. I would suggest that we frame a new article setting forth the manner of suspension where a person fails to pay his annual dues. As we stand at present, we have members who paid their dues when they originally signed their applications for membership, and have not paid 1 cent into the treasury since. These parties are receiving all the benefits of the association just the same as though they were fully paid up. The officers have not the power to cancel such members from our roster unless they signify their desire to be discontinued as members. These delinquents may possibly have good intentions, and may want to pay their indebtedness at a future time.

BOOK OF PROCEEDINGS.

Our Executive Committee met in December, and considered various matters before this association, among which we considered a proposition of issuing an illustrated book of the proceedings of our annual meeting, embodying in the same advertisements of the various Hardware and Stove manufacturers and jobbers. Your secretary was instructed to obtain more information on this subject from those who had issued similar books. Some associations have handled the entire matter themselves, and found it very laborious work. Others have contracted with persons in that line of business, and have let the contract to these outside parties, receiving a percentage of the net profit as their share.

I wish to report to this body the fact that President Cormick had devoted much of his time in the past year to the hard work imposed upon him as the head of this association, not alone at his desk, but out among the towns throughout the Middle and Southern end of the State. He has repeatedly left his store for the sake of gathering in a few dealers who are not yet members. We have allowed him what money he spent for railroad fare and hotel bills, and, according to precedent, will probably thank him for the balance.

Your attention is called to the magnificent work done by Charles Mauer of East St. Louis. He has gathered into our fold all of the dealers of his city; has worked for us with a vim whenever called upon.

MEMBERSHIP REPORT.

Membership at last annual meeting	161
Received since	78
Total	239
Resigned	12
Leaving a balance of	227
Honorary member	1
Total membership	228

FINANCIAL REPORT.

Balance on hand as per last annual report	$88.21
Received since	755.00
Total	$843.21
Paid out	633.51
Leaving balance on hand	$209.70

Mental Equanimity.

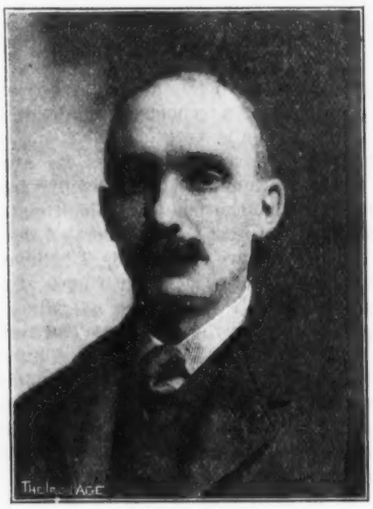
BY CHAS. H. WILLIAMS, STREATOR, ILL.

Life, from boyhood to the grave, is to the ambitious and energetic man an ever changing and intricate problem, full of possibilities and responsibilities that make him put forth his utmost efforts to attain that ever fleeting and, after all, only relative object, success in life.

From the time a young man begins his business career until age or ill health retires him from active life the whole period of his perfect manhood, most of his waking hours, are devoted to business. He may plan that in the dim future he will partly retire and have plenty of leisure time, but to most that time never comes.

PERPLEXITIES IN HARDWARE.

The retail Hardware business presents a vast amount of detail in proportion to the volume of business done. The great variety of articles, the many sizes and grades, the thousands of sources from which a dealer may do his buying, the demand one day for a penny's worth and the next for more than a jobber's stock; these on one hand, and on the other the demand for guarantees of quality, or that this or that will "suit" the customer and all his neighbors, for more and better goods for less money, the markets behind with prices unknown a day ahead, the customer in front, ever expecting better service, make it a problem for the retailer in the midst



CHAS. H. WILLIAMS.

of it all to preserve his equilibrium, "to row, not drift," ever reaching out for a larger volume of business.

Accomplish this and half the battle of success is won. A well-known writer states that a man running a cross roads store with four customers a day may worry himself to death over the details of his business. While another, with a business that extends over half the earth and employs thousands, may keep his nerves steady and his mind open to new opportunities, due wholly to nerve control and keeping his mental condition right.

BE COOL HEADED.

When we consider that the best part of our lives is to be devoted to business we cannot study too carefully how we may make it pleasant, as well as profitable. Any one can attend to a customer's wants when he comes in with a satisfied feeling and all is serene, but when he comes with a complaint, with his blood riled over some real or fancied grievance, or with the determination to secure a settlement unfair to the dealer, then it is that there is needed the most cool headed, cold blooded management.

Everybody gets unreasonable sometimes, and upon the way he is handled when in the vernacular of the day "he has a kick coming" often hinges all future dealings with him. Properly, and friendships are strengthened, and the town filled with living, walking advertisements; improperly, and often lifelong enemies are created.

AVOID STRAIN AND WORRY.

Aside from the profitable side of it, the pleasure of doing business can be greatly augmented by cultivating

mental serenity and avoiding mental strain and worry. I do not mean to be weak and easily imposed upon. Just as in the matters between great nations, who, back of their diplomats and statesmen, their arbitrators and counsellors, have their powerful armies and navies, a great reserve power, ready when all other means fail to enforce their claims regardless of cost or consequences; so in the matter of business, back of all diplomacy and liberal mindedness of making concessions and allowances when all other means fail, have a fidelity of purpose to fight, without a bit of passion, for your rights, regardless of cost. Don't, however, worry and walk the floor nights; make the other fellow do that.

DON'T GET EXCITED.

The number of occasions requiring the use of diplomacy and avoiding the use of any "big guns" are numerous and varied. Suppose you are selling Bicycles and a customer comes in with a wheel that looks as if there had occurred what would happen if an irresistible force collided with an immovable body, and with a manner like the ruler of all the Russians or a canal boat captain tells you that his guaranteed wheel broke down on a level road, and asks in the words of the late William M. Tweed: "What are you going to do about it?"

Don't get excited; sympathize with him. Ask when it occurred, jot down all the particulars, find what friends were with him at the time. Then tell him to make affidavit to what you have jotted down, and you will call a notary and have it acknowledged. Also that you will see his friends and get their corroborative affidavits, and his wheel will be fixed free. Caution him to be sure that he has made no misstatements. He will look as if an attack of heart failure were coming on, and say: "Did I mention that I bumped it into a telegraph pole? Send it in. I'll pay the charges and not bother the other boys."

STOVES.

If you are in the Stove business and have sold Mrs. So and So a standard grade of Stove on unreasonably small payments, and she has burned it a few weeks and comes in excited, and after giving you a general blowing up, tells you that that Stove is "no good," that all the neighbors say so, and you must take it back, smile your sweetest smile, ask who the neighbors are, tell her about the well dressed little boy who was criticised by the ragamuffin because his new suit hadn't any "galluses," suggest that within a year or two the envious neighbors may be able to get an up to date Stove also, and you cannot buy that Stove back at any price.

But suppose the Stove has been sold two or three years and has not proven as serviceable as you or the purchaser anticipated, and the head of the family comes at you, loaded and primed, and attacks as if you have committed some great crime. Keep cool; think while he is talking how rarely he gets a chance to unburden his mind, and how narrow the horizon of his life may be; the self denial it has taken for him to buy and pay for the article. Then tell him that no claims on the manufacturer can be made at so long a time after, that you didn't make the goods and are not a guarantee association, but that you are not running away from trouble, and will investigate his grievance and treat him fairly, regardless of cost to yourself. Many times it will cost very little to satisfy the complaint and leave the dealer stronger with his customer and himself than if he had disregarded the complaint.

RUN A COMPLAINT OFFICE.

And thus with all the differences that arise with customers, it is easy to pay insufficient attention to the complaints of customers, trusting to time and judicious advertising to heal all the ills which arise. But let a dealer resolve to run the complaint office himself for a year, to mentally put himself in the other fellow's place and cheerfully satisfy all reasonable demands and some unreasonable ones, and when the year is over and the balance sheet footed up not only in dollars and cents will he be ahead, but the serenity of mind and self-satisfaction of having never retreated from trouble will leave him stronger in his hold on future business.

THE TRAVELER.

The average dealer, who does his own buying and correspondence and supervises all departments, will often find himself at 5 o'clock in the evening with his forenoon's mail not half answered, when in comes a traveling man. Probably 29 others have been in that day and the inclination is to wish No. 30 elsewhere. Perhaps he represents some line that you have special arrangements on that makes it impossible to do business with him, but think a minute. He is spending his good money to come and see you and considers you of enough consequence to put you on his list. Give him as careful attention as if he were the only one in town, and perhaps you will glean information that will make this the most profitable moment of the day.

Treat each commercial traveler as you would want to be treated if you were in his place and it may cost you some evenings of hard work that might otherwise have been finished in the afternoon, but the fact of knowing that one has been a gentleman to each one soliciting his patronage strengthens one in his dealings with his own customers.

REST THE MIND.

I doubt if in any other kind of retailing there is such a mass of detail, both in buying and selling, as in the Hardware business. It all tends to bring on nervousness and the attendant disease, crankiness, the most expensive disease a business man can acquire. The means of avoiding these conditions lie within the individual. He should cultivate the society of the successful and the optimistic and avoid the pessimistic. He should read the writings of cheerful philosophers. Realize that the mind must have rest. That while American push is a good thing, thousands on the "dead run" are wasting the opportunities around them through not stopping to think that worry weakens and tension is energy going to waste; that a certain amount of mental relaxation and reverie is the best stimulant for the emergency to follow. Be optimistic and with a good will toward all, picturing ultimate success at the end of all effort and one's life will be the happier on account of this. This state of mind in business is in accord with the philosophy of Cicero 2000 years ago, concerning immortality. He had lost his best friend and wrote, "I shall always believe in the immortality of the soul and the reunion of friends after death. If true, it makes life happier, and if all a myth, does no harm."

WHY DO HIGHLY EDUCATED MEN FAIL?

It is often asked why a large proportion of highly educated men fail in business, while the man of lesser educational opportunities succeeds. A plausible explanation is that the one constantly overtaxes his mind, while the other has learned to rest his and be ready to grasp the business opportunities as they occur. But the one thing in the present chaotic condition of retail merchandizing that will contribute more than all others to the mental equilibrium of our Hardware dealers is this: A membership of at least 80 per cent. of all in the State, our sister States to have an equally large per cent. and each individual ready and willing, in addition to supporting his State association, to pay $2 to $10 per annum to the support of our national organization.

A RESERVE NEEDED.

We all donate this amount many times every year to things we have little interest in. The strongest cement for sticking any organization together so it will stay stuck is a reserve fund in the treasury. I would like to see a reserve fund of at least $2000 in our national treasury.

When we have had the benefit of the time and brains of such men as Miller, Cozzens, Lewis, Corey, Cormick, Sibley and others of the National Association, freely given, we should at least relieve them from carrying the financial burdens of the associations.

A strong membership, aside from providing the necessary financial fuel, is to our officers what the armies and navies of a nation are to its diplomats, a great reserve power, "the 15-inch guns," the power which can be safely trusted in their hands to bring about the trade

conditions needed to keep in proper trim the mental equanimity of our members.

Co-operative Buying and How It Works in the Chicago Retail Hardware Association.

BY H. C. PEPPLER, CHICAGO.

The organization of retailers, and I may state right here that the Hardware men are in the front ranks in the movement, into local, State and national associations is a step in the evolution of a readjustment of conditions that are changing. Concerted action was evidently needed when individual efforts had been in vain, and there can be no doubt of the fact that the work is slowly bearing fruit. It has thrown down the barriers of competitive enmity, and established a fraternal feeling of good fellowship between dealers who, in the meetings, really became aware of the fact that the outside encroachments they had to contend with as a body amounted more to each one than the competition of his neighboring dealer.

How best to meet the common evil has always been the leading subject under discussion at the various meetings and conventions. Many courses of action have been proposed and taken up. Among these co-operative buying has come in for some attention, but not for near as much as its many sided advantages would seem to merit.

WEAN PUBLIC FROM DEPARTMENT STORE.

One of the important moves in a crusade such as we have on hand is to wean the buying public from the idea that they can do their purchasing at the department store, or from the catalogue house for less money than at our stores. Eliminate this low price notion, and the much talked of advantages of immense selections doing all your trading under one roof, and whatever others may be included in the list, fade into comparative insignificance, while the disadvantages of the wearisome journey, the crush and jam, the danger of being robbed, &c., on the department store score, and the long wait for your goods, the uncertainty of getting just what you want in looking at the picture, but the certainty of losing your C. O. D. advances with the catalogue house are all bound to loom up brighter and brighter as experience after experience lends its teachings. This work of changing the opinions of the masses is a big task. It requires untiring efforts. These efforts must be directed along definite channels, and one of these channels is co-operative buying.

CO-OPERATIVE BUYING.

It was with perhaps a hazy idea of the importance of the work that the Chicago Association first took up the plan of buying together. It has, so to speak, developed itself until its effects are further reaching than the casual observer would suspect. For instance, a few years ago, when the department stores began to loom up, a towering menace to the smaller dealers, and the best of us could hardly take other than a pessimistic view of the matter, in the conviction that we would all be crowded out, we had no argument to offer. People seemed to come and trade with us more as a neighborly favor than anything else. If they did not say it in so many words one could almost read the thought in their faces, that the downtown stores, buying, as they did, in immense quantities, could sell cheaper than we, but, as we did pretty well for little fellows, they would sacrifice a little for our sake. Let them come now, and we can make a convincing statement, when we tell them that we belong to an association of Hardware merchants who buy their goods in a lump, and thus get the best price that the market affords. Before they leave us we have started the wheel spinning in our favor. Ten chances to one in talking with friends they will hit on this very theme during the conversation.

MANUFACTURERS MUST CONSIDER RETAIL TRADE.

If this were all it would alone be worth considerable, for if we can advertise the fact that we buy co-operatively people will soon begin to doubt that our big competitors have much, if any, advantage over us. It is not nearly all, however. In spite of the fierce inroads of the department stores into our sales we still sell plenty of goods, and manufacturers are bound to take our likes and dislikes into weighty consideration. If they are makers of articles of standard merit and trade-mark brands, they can hardly afford to incur our displeasure by selling their goods to the big stores through means of special inducements, for in case said stores should take up some other line in the course of a year or two, we, as a body, would hardly take up the line that had been exploited to death. If we bought individually, however, many of us would not know of the facts, or would not think of them, and the manufacturer would still find a fair market for his goods in our territory. Our plan can, therefore, lay claim to a definite worth in regulating the market in our favor.

INCREASES CONFIDENCE IN PRICES.

Furthermore, co-operative buying gives each individual member greater confidence in his prices. He knows that his neighbor and his neighbor's neighbor all pay the same price that he does, and that the price must be just about right, because it was obtained in the open market in fair competition. He can therefore ask a fair profit and stick to it, without the fear that he may have paid more than the market value for the article, in case a customer came in quoting some catch ad. price.

Then comes the price feature. Goods are undoubtedly sold very close nowadays, and it is often impossible to save more than 10 or 15 per cent. Ten per cent. should not be looked at with disdain as a saving in buying. It goes a long way toward paying the rent bill or clerk hire, or for that matter makes a neat little profit in itself. On many lines, however, the saving is considerably greater, and as the plan begins to work more and more nearly perfect, the competition for our trade will undoubtedly become keener and keener, which, naturally, will result in still greater advantage to us.

SOME MEMBERS ARE INDIFFERENT.

Contemplating all these different advantages and merits of the plan it would seem that all members of an association would jump at the chance to push it along and make it as effective as possible. There is, however, a strange trait of apathy and indifference present in most of our characters, and it has held back many of our members from aiding where they might. It has taken most earnest and painstaking efforts on the part of past workers to bring the system to where it now is, in the Chicago Association, and it hardly receives the concerted support that it should even yet; neither is the whole matter handled with the discretion that should be given it by the individual members. Manufacturers will always be chary about giving out prices and concessions, only to have the same made public property of. All merchants should be aware of this fact, but it will require a whole lot of coaching yet before some of our members learn the value of prudence in this respect.

BUY FROM OTHER FIRMS.

Another point that has retarded the rapid development of the movement is an unloyalty of some of our members, as it might be called, to the cause. The association, for instance, calls in bids for some certain article and finally decides on awarding the business to some certain manufacturer, or jobber, as the case may be. Rival houses, either out of feeling of jealousy or for the sake of giving our plan a setback, start out at once, quoting to individual buyers as low or nearly as low prices as the association is getting. It would seem that every one who had his own future good and the welfare of all at heart would turn such parties down, but in spite of all resolutions and admonishments, some members let a fancied preference for somebody else's make of goods, or an indifference to all but their own momentary welfare and convenience lead them to giving their order to some persuasive agent who calls on them and saves them the work of sending in their order to the association. Such a course may not seem to amount to much, but it always has a desultory effect. It establishes bad precedents, and more than that, it denies our unity of action. I am glad to be able to state, however, that this grievance is slowly righting itself as the members learn the true value of the work.

THE FINANCIAL PROBLEM.

The financial problem of our different deals has, as a general thing, been quite satisfactory, as it should by rights be if every member met his obligations promptly. There have been a few laggards right along who do not take into consideration that where the goods are billed to the Buying Committee it does not take many accounts of $5 or $10 to make $100, and that they are keeping a fellow dealer out of his money when they let the association bills run along unpaid; or that where the manufacturers handle the separate accounts direct it casts more or less of a slur over the whole association and makes such manufacturers less anxious for our business when a certain percentage of our members do not pay their bills promptly when due. It should, therefore, be the aim of every member to pay special heed to such accounts and thus aid in establishing an unblemished financial rating for the association.

RESULTS SATISFACTORY.

The results of our co-operative buying have, I think, been quite satisfactory to all of our members who entered into the plan. We had a very satisfactory deal last year on Refrigerators and on Garden Hose, as also on Blue Flame Oil Cooking Stoves and Oil Heaters. Even such small accounts as Gas Hose Cocks, Wire Clothes Line and Stove Pipe Wire showed up quite respectable savings for us. We have already awarded our business on Wire Cloth, Refrigerators, Rubber Hose and Screen Doors and Windows for the coming season, and have several other deals shaping now for early attention.

Manufacturers seem to recognize the importance of the plan and follow its development much more closely than a large percentage of our members. Some of the largest and most conservative establishments tender bids on wants, and the Buying Committee is time and again importuned to take up new goods by representative concerns, who seem to prefer our trade to that of our big opponents, who a few years ago seemed in a fair way to gain control of the entire market.

KNOTTY PROBLEMS STILL TO BE SOLVED.

If the subject of my paper were a prophecy, in place of a plain chronicle of facts, I would revel in all kinds of possibilities and would undoubtedly lead you all up to a "National Buying Committee," keeping close tab on the laws of price advance and decline; in close touch with whom were the local committees, engineering the business of their respective associations, all prepared at any time to lump their wants in making extra large deals. I would hardly have to stop there, for I can see a vast field of possibilities even beyond that. As it is, however, I will close with the hope that success may crown the forward efforts of our own committee, and that other local associations may push the plan, and perhaps give us pointers at our next convention, tending toward the solution of some of the knotty problems that still remain on our hands.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

W. O. Smith has just opened a new store at 2583 Market street, San Francisco, Cal., and will carry on the business under the style of W. O. Smith Hardware Company. He will handle Builders' Hardware, Tools, Cutlery and Specialties, and will be pleased to receive catalogues and discount sheets pertaining thereto.

Peter F. Tague & Co., manufacturers' agents and dealers in Iron, Steel and Heavy Hardware, Blacksmiths' and Contractors' Supplies, 51 Oliver street, Boston, are desirous of receiving catalogues, &c., from manufacturers in their line.

Edward O'Donald and J. Gilbert Taylor are about to open a new store in Jacksonville, Fla. The firm style is O'Donald & Taylor Hardware Company, and their location is 22 and 24 East Bay street. The new house will handle General and Builders' Hardware, Agricultural Implements and miscellaneous goods, and will value catalogues, price-lists, &c., from manufacturers in these lines.

THE GURNEY REFRIGERATOR COMPANY.

A THOROUGHLY modern plant for the manufacture of Refrigerators is the new factory of the Gurney Refrigerator Company, Fond du Lac, Wis. This factory takes the place of the old works of the company which was burned April 27, last year. Immediately after the fire arrangements were made to rebuild, and the first Refrigerators were turned out in the new plant about October 1. The company are exclusively manufacturers of Refrigerators, and give this business their entire time and thought. They are continually bringing out new ideas, and their enterprise is shown not only in the character of the goods they manufacture, but also in the design and arrangement of this new plant, which is one of the largest in the country. The capacity of the factory is now 200 Refrigerators daily.

The works occupy an entire city block. The main building covers a ground space of 175 x 195 feet, part two and part three stories high. This building is solidly constructed of brick with high ceilings, all the interior whitewashed to secure abundant light, and protected by an underwriters' pump, sprinkler system, fire walls, automatic closing doors and electric alarms to guard against a repetition of their former experiences. So thoroughly protected is this building that the rate of insurance is but one-eighth of the rate in the former factory. In it all the milling, assembling and finishing of the Refrigerators are performed.

The company have their own lumber mills in Wisconsin and do their own logging and sawing of lumber, so that their works cover the entire process, from the tree to the finished product. They have no large stock of lumber in the vicinity of their factory, but receive regular shipments by rail from their saw mills, and pass this lumber rapidly through the various departments.

The tracks of the Chicago & Northwestern and the Wisconsin Central railways run through their yard, and the lumber is unloaded directly from the cars on cars with low trucks and run into the dry kilns, which are in a detached building and are of sufficient capacity to hold 175,000 feet of lumber. From the kilns a car with dry lumber goes directly into the factory. No hauling is done by teams, but everything is handled by cars. In the factory the lumber first goes to the planer on the ground floor and then to other departments, where it is cut into proper widths and lengths and run through a variety of ingenious machines. All the milling or heavy work is done on the ground floor and the materials all pass steadily in one direction. Here are also great sanding machines for thoroughly smoothing the surfaces of side and front panels and doors after they have been assembled by cabinet makers on the second floor. The shavings and sawdust from the various machines are drawn through pipes passing from each machine, which are so arranged that they finally discharge this refuse into the arch of the boiler furnace, forming practically all the fuel needed. Even the sweepings from the floors are drawn into this system.

In designing this building a very large elevator was arranged in the exact center of the structure, so that the various departments might be grouped around it, making the elevator the point to which all operations would tend and thus save time and labor in passing from one process to another on different floors.

The ground floor further contains the power room, store room, machine shop and a large filing room. The power room is equipped with a Corliss engine, which operates nearly all the machinery, and a small engine, which is used for running a 300-light dynamo and the fans for hot air heating. The entire building, except the varnish room, is heated on the Sturtevant hot blast system. The exhaust steam from the engine room passes through a large coil of pipe through which air is forced by fans, one set of discharge pipes leading into the va-

rious rooms of the factory and another set into the dry kilns. The stock room is used for carrying the stock of zinc, insulating materials, nails and other articles needed in the construction of the Refrigerators, apart from the lumber. The machine shop is fitted with a full equipment of iron working tools, and is used for repair work and for building special machines of the company's own design for certain classes of their work. The filing room is equipped with automatic machines for filing and setting saws.

The second floor is used for a number of departments, prominent among which is the room in which cabinet makers make the sides and doors and assemble them into box form for the outside cases. Individual glue pots heated by steam are placed at each workman's bench. This department is supplied with machines for embossing moldings for decorative work, with drills operated by flexible shafts and other interesting machines specially adapted to the class of work required.

All metal work is done on the third floor. This department is fitted with shears, folders, gang punching machines, corrugating machines and other tools for handling the metal linings and the metal for ice compartments, shelves, &c. The removable galvanized ice compartment, of which this company are the originators, has its sides made in separate pieces, each of which has a large number of holes punched along the top. These holes are all punched at one time on each sheet by a multiple punching machine, and at the same time this machine presses the sheet in shape to be formed into a box. The inside sections are made here, the zinc linings are inserted and soldered, the mineral wool and other insulating materials are inserted and the process is advanced to the stage at which the addition of the outside casing can be made. Two enameling ovens for enameling interiors of refrigerators are on this floor.

From the assembling room on the second floor a procession of boxes is steadily moving into a room called the filler room, where the first coats of varnish are applied. They next pass into a varnishing room heated by steam for the purpose of keeping it absolutely free from dust. The crating room adjoining is the room in which all Refrigerators are crated for shipment, the locks and hinges being fitted on the boxes just before crating.

From the crating room an elevated passageway runs to the warehouse, which is 150 feet from the main factory. This warehouse is four stories high, has a capacity for holding 20,000 Refrigerators and is located along the tracks of three separate railroad systems—namely, the Chicago & Northwestern, Wisconsin Central and Chicago, Milwaukee & St. Paul. From this warehouse all shipments are made, even local shipments being made by car instead of by wagon. This building has been constructed to be thoroughly fire proof, being built of solid stone. The offices of the company are located in a separate building erected for this purpose and handsomely fitted up. It contains five apartments admirably arranged for the convenience and efficiency of the clerical force.

All the Refrigerators made by this company are constructed of hard wood in golden oak finish and have raised panels and raised carvings. The company make five lines in all—namely, the Gurney, Cold Wave, La Belle, Imperial and Enamel. They are also bringing out a glass line. The Refrigerators are sold through jobbing representatives in every part of the country. A large shipment has just been made to Honolulu. The founders of the company are still active officers of the organization, as follows: C. J. Medberry, president; David Jack, vice-president; M. J. Peck, secretary and treasurer. They established the business in 1880 at Oshkosh and removed to Fond du Lac in 1881.

W. H. Bailey has sold a half interest in his Hardware store at Morgantown to Wilbur Posten, who has been in the general mercantile business at Huttonsville, W. Va.

The copartnership heretofore existing between J. F. Ford and H. P. Taylor, under the firm name of Ford & Taylor, Lacona, N. Y., was dissolved by mutual consent on the 14th ult.

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The Wisconsin Retail Hardware Association.

THE largest convention in the history of the association was the sixth annual, held at the Republican House, Milwaukee, on the 5th and 6th inst. by the Wisconsin Retail Hardware Association. The following dealers were in attendance, according to the register, but it is believed that quite a number failed to record their names:

C. A. Peck, Berlin.
John Hessel, Antigo.
G. A. Mueller, Columbus.
C. W. Lehman, Cedarburg.
Andrew Noll, Chilton.
W. H. Hay, Oshkosh.
Geo. W. Buelow, Waupun.
E. W. Peterson, Florence.
Torgeson Bros., Stoughton.
F. J. Sengbusch, Burlington.
H. Koust, Burlington.
A. H. Sheldon, Janesville.
J. A. Wilkie, Fond du Lac.
E. C. Williams, Waupaca.
F. M. & M. M. Frick, Whitewater.
Hager Bros., Fort Atkinson.
C. E. Dewey, Kenosha.
Edward Felschow & Co., Clintonville.
Chas. Skicht, Kenosha.
R. J. Evans, Markesan.
H. Winter, Clintonville.
Pittsville Hardware Company, Pittsville.
S. F. Wenzel, Oshkosh.
F. W. Marcussen, Platteville.
W. H. Oettiker, Platteville.
F. Rassmann, Beaver Dam.
Esser & Schmidt, Hartford.
J. L. Roblee, Fond du Lac.
C. F. Thalheim, Wausau.
O. J. Williams, Cambria.
J. H. Yost, Wausau.
A. Kimball, Green Bay.
G. G. Pratsch, Depere.
John Hamilton, Westfield.
Thos. Madden, Pardeville.
J. B. Pierce, Monticello.
E. H. Ramm, New London.
T. O. Mosher, Thorp.
T. C. Wood, Rhinelander.
H. Machlett, Curtiss.
D. A. Barber, Black Earth.
O. A. La Budde, Elkhart Lake.
Stollenwerk Bros., Milwaukee.
Ed. Dehme, Neosho.
J. M. Duecker, Keil.
Simon Fink, Milwaukee.
H. J. Weyer, Darien.
C. B. Wagner, Burlington.
F. W. Matthaeus, New Holstein.
W. F. Smith, Oconomowoc.
Ed. Jenkin, Mineral Point.
Geo. J. Schwengle, Muscoda.
A. D. Race, Depere.
Ralph M. Burtis, Oshkosh.
J. W. Kraus, Port Washington.
B. Ungrodt, Washburn.
H. M. Krogmann, Milwaukee.
Anton Siefert, Adell.
Pflugradt Bros., Milwaukee.
F. E. McGraw, Peshtigo.
H. E. Frisbie, Pine River.
C. G. Hamilton, Hancock.
C. F. Pieper, Columbus.
J. W. Hall, Whitewater.
Geo. Hansen, Jr., Fort Atkinson.
P. J. Jacobs, Stevens Point.
F. B. Rawson, Plainfield.
R. H. Suettinger, Two Rivers.
John W. Heid, Jefferson.
Fred. Haase, Fox Lake.
M. John, Milwaukee.
Ruka Bros., Boscobel.
M. Wiser, Neosho.
Wm. Lindsay, Milwaukee.
L. M. Nash, Grand Rapids.
Chas. C. Staadt, Milwaukee.
Geo. Droeger, Jr., Seymour.
J. Dexter, Cambria.
S. A. Mangold, Wausaukee.
John Arndt, Elkhart Lake.
Greve Bros., Kiel.
Robert Reinhold, Milwaukee.
A. C. Fuge, West Bend.
Marschalk & Weiss, Milwaukee.
H. L. McNamara, Janesville.
O. P. Schlafer, Appleton.
F. D. Schweers, Shawano.
H. Harrison, Wautoma.
Chas. Janisch, Waterloo.
G. P. Plischke, Milwaukee.
J. R. Burks, Milwaukee.
Edgar Kroner, La Crosse.
Andrew Kahn, Jr., Sauk City.
E. Wupper, Milwaukee.
E. E. Webb, Milwaukee.
Simsen & Ruppenthal, Hilbert.
Emil Karnopp, Almond.
Thomas & Cunningham, Berlin.
John Wagner, Fond du Lac.
John Hughes, Fond du Lac.
C. Lane, Fond du Lac.
Gustav Raesler, Fall Creek.
Aug. Thielke, Mayville.
G. A. Spiegelberg, Brownsville.
A. D. Meyor, Milwaukee.
R. W. French & Son, Ashland.
Geo. P. Leverenz, New Holstein.
Rudolph Puchner, Wittenberg.
Henry Vetter, Milwaukee.
C. B. Tifft, Hiebert.
H. B. Bartelson, Milwaukee.
F. G. Schultz, Milwaukee.
F. W. Lidral, Algoma.
G. Raddetz, Milwaukee.
E. F. Mertz, Milwaukee.
Emil Teitgen, Manitowoc.
E. S. Dittman, La Crosse.
J. C. Stormer, Milwaukee.
Mehlke & Rose, Bondnel.
M. A. Chamberlin, Milwaukee.
F. J. Frost, Almond.
R. W. Puchner, Edgar.
H. H. Miller, Sheboygan.
John L. Wolcott, Sharon.
R. H. Fitch, Burlington.
H. F. Krueger, Neenah.
A. J. Kilian, Milwaukee.
E. J. Stansbury, Appleton.
E. F. Stamm, Milwaukee.
Leonard Findelsen, Green Bay.
F. H. Ellenberg, Reedsburg.
H. H. Marion, Oregon.
J. B. Weinsick, Plymouth.
J. G. Trentlage, Milwaukee.
Chas. F. Bullwinkle, Jefferson.
J. J. Koepsell, Sheboygan.
H. A. Wallschlaeger, Manitowoc.
Arthur Heins, Tigerton.
A. Field, Sharon.
Wm. Lyon, Milwaukee.
J. F. Moreau, Milwaukee.
O. J. Sutter, Milwaukee.
Robert Moore, Reeseville.
Wm. Wedde, Campbellsport.
W. A. Cole, Packwaukee.
F. J. McPherson, Oshkosh.
Geo. W. Buelow, Waupun.
L. C. Peck, Berlin.
H. F. Prenzlow, Johnson Creek.
F. A. Krembs, Stevens Point.
Fred. S. Sheldon, Janesville.
D. D. Hayden, Sun Prairie.
Jas. H. Morrison, Morrisonville.
Caspar Bagley, Cambridge.
August Schupinsky, Milwaukee.
Byron E. Walter, South Milwaukee.
C. H. Lee, Baraboo.
Fred. W. Meyer, Wautoma.
J. Kornely, Milwaukee.

OPENING SESSION.

The first session was held on Wednesday afternoon. After the roll call, to which over 100 members responded, and the reading of the minutes of the last annual meeting, President John Hessel of Antigo read his address, which was printed in last week's issue.

The following committees were appointed:

TRANSPORTATION: Arthur Heins, Tigertown; C. A. Peck, Berlin.
RESOLUTIONS: A. H. Sheldon, Janesville; Andrew Noll, Chilton.
GRIEVANCES: R. W. French, Ashland; R. W. Puchner, Edgar.
RECEPTION: A. D. Race, Depere; August Schupinsky, Milwaukee.
LEGISLATION: Emil Tietgen, Manitowoc; Robert Suettinger, Two Rivers.
AUDITING: O. P. Schlafer, Appleton; E. H. Ramm, New London.
QUESTION BOX: Henry Krueger, Neenah; John Hughes, Fond du Lac; Ralph Burtis, Oshkosh; C. A. Dewey, Kenosha.
PRESS: L. Findersen, Green Bay; Ralph Burtis, Oshkosh; Geo. W. Cope.

Secretary C. A. Peck of Berlin read his report, which was printed in last week's issue.

Treasurer George Leverenz of New Holstein read his report, showing a balance on hand of $1078.15.

The reports of the secretary and treasurer were referred to the Auditing Committee.

Fred. Kusel of Watertown, who had been expected to read a paper, was reported ill, which caused a variation from the printed programme. The report of the Committee on Revision of the Constitution and By-Laws was called for. Vice-President O. P. Schlafer of Appleton read the report of his committee and the revised constitution was adopted section by section. An important change is the consolidation of the offices of secretary and treasurer. Another change permanently provides for the holding of the annual meeting at Milwaukee. The new constitution and by-laws are as follows:

CONSTITUTION.

ARTICLE I.

Section 1. The title of this organization shall be the Wisconsin Retail Hardware Association."

Sec. 2. The object of this association shall be to promote the welfare of the retail Hardware trade of Wisconsin and create among its members a confidence in each other.

ARTICLE II.

Any person or firm who is engaged in the retail Hardware business in good standing, and carrying a general assortment of stock, may become a member of this association by subscribing to the constitution and paying the annual dues prescribed by the by-laws.

ARTICLE III.

The officers shall consist of a president, a vice-president and a secretary-treasurer, which officers, with four others, members of this association, one of which four must be a resident of Milwaukee, shall constitute the Executive Committee.

ARTICLE IV.

Sec. 1. The president, vice-president and secretary-treasurer shall be elected annually by ballot for the term of one year each. After the adoption of this constitution, two of the Executive Committee shall be elected for two years, two for one year, and thereafter two members of such Executive Committee shall be elected annually for the term of two years.

Sec. 2. In case of a vacancy in any of the offices of this association, the same shall be filled by appointment by the president until the next annual meeting.

Sec. 3. It shall be the duty of the president, or in case of his inability to serve, of the vice-president, to exercise supervisory control over the affairs of the association calculated to improve the condition of the Hardware business.

Sec. 4. It shall be the duty of the vice-president to perform the duties of the president in his absence or in case of his inability to serve.

Sec. 5. It shall be the duty of the secretary-treasurer to keep a record of all meetings of the association or Executive Committee, conduct all correspondence, notify all committees of their appointment, keep a list of members in book kept for that purpose and perform such other duties as pertain to his office, or may be prescribed by the by-laws, have charge of all moneys of the association, collect all fees and annual dues, pay all bills when approved by the president, and report the condition of the treasury at each annual meeting of this association, and when required by the president.

Sec. 6. The secretary-treasurer shall be required to give bonds acceptable to the Executive Committee, twice the amount of the money intrusted to him, and that the association pay the expenses of the same.

ARTICLE V.

The annual meeting of this association shall be held at Milwaukee on the first Wednesday of February.

ARTICLE VI.

Amendments to the constitution may be made at any regular meeting of the association by the vote of at least two-thirds of the members present. Ten days' notice shall be given to members of any proposed change in the constitution or by-laws.

ARTICLE VII.

An auditing committee of three shall be appointed the first day of each annual meeting, which shall examine the books of the secretary-treasurer, and report their condition to the association.

BY-LAWS.

Section 1. The Executive Committee shall meet at least once each year, besides the time of the annual meeting, and oftener if so requested by the president.

Sec. 2. The admission fee to membership shall be two dollars, in advance, which fee shall cover all dues until the next annual meeting. Each member or firm shall pay for current expenses thereafter two dollars annually, payable at the regular meeting of the association.

Sec. 3. Twenty-five members attending any annual meeting shall constitute a quorum.

Sec. 4. Each firm shall be entitled to one vote.

Sec. 5. Any member may delegate, in case of unavoidable absence, a representative, who must be a member or employee of said firm or corporation, to represent them at any meeting of the association, who shall present written credentials of the firm or corporation he represents.

Sec. 6. All fees and dues must be paid before a member can be recognized as a member or become entitled to act in the association.

Sec. 7. Any session of this association shall be "executive" when so decided by the Executive Committee, to which only *bona fide* members and such other persons as they may designate shall be admitted.

The election of officers, which had been scheduled for Wednesday afternoon, was postponed until Thursday morning on motion of Andrew Noll.

QUESTION BOX.

Announcement was made that the Question Box was ready for questions and a number was at once deposited. The first read was as follows:

When will traveling men cease to spread their samples on top of a nice japanned reservoir?

A traveling man answered that they would do so as soon as they were furnished a better place for their samples.

A communication was read from the Neenah Merchants' Association, asking this association to co-operate with other organizations in the State to assist in endeavoring to secure the revision of the exemption laws of Wisconsin and thus secure better protection of credits. The communication was referred to the Committee on Legislation.

Is it advisable in towns of less than 1000 population to push the sale of hot air furnaces instead of heating stoves?

The advice given by those who had experience was that if a merchant does not have in his employ a first-class tinner who can put in a Furnace, he is better off without the Furnace business. A ripple of laughter was caused by a member who stated that in handling Furnaces "You get old Stoves for your profit."

How can we best get our sons interested in the hardware business with us?

This brought out interesting statements by Mr. Peck and Mr. Schlafer. Mr. Peck interested his sons by making them partners and finds that they are as full of good ideas as himself. Mr. Schlafer has given his son a department in his store which he manages outside of school hours and is making it a success.

Is there any reason why we should not form an insurance association in Wisconsin?

Julius Schmidt, Wabasha, Minn., member of the Minnesota Association, was introduced. He described the difficulties attending such an undertaking. It was a long time before the Minnesota Association got its insurance department in good working order, and a great deal had to be learned. It was necessary to get $200,000 insurance pledged before a charter could be secured under Minnesota laws, and this was a most serious task. It was further difficult to get the confidence of the members so that they would insure. Many took out very small policies at first. Afterward they doubled them, and now the association is doing a good business in this line. It has saved the members 25 to 40 per cent. of the cost of their insurance. The charter permits the association to write policies in Wisconsin and North and South Dakota. It now has some policies from dealers in Wisconsin. Insurance is only written for Hardware dealers who are members of Hardware associations. The amount of insurance is limited to $3000 for any one merchant. The association now has $900,000 insurance.

What size of squaring machine is best to buy for a country shop?

It was quite unanimously decided that not less than 30 inches is the proper size.

What is a good pointer for a remittance blank?

The answers showed that it seemed unnecessary to send out more than an ordinary statement.

Why are the retailers obliged to carry freight on Stoves until the invoices are paid?

This question was explained as relating to cases in which manufacturers assume the freight. It was an-

swered that freight is cash and must be paid. Those who buy on credit cannot expect manufacturers to pay their freight. In such cases the cash discount is deducted from the full amount, not deducting the freight.

How many have seen a Window Glass list from manufacturers to jobbers?

It developed that few had. The difference between the manufacturers' and the jobbers' lists was explained, and it was also explained that a better profit is realized in buying by the box than in buying by the light.

How can you tell how much you make each day as a merchant?

Mr. Peck explained his method. He keeps a cash book and puts down every sale, at the same time putting down the cost in another column. At night the difference between the two columns shows the profit. This is open to the criticism that clerks of course must know what the goods cost.

An interesting discussion was precipitated by a member who asked for the experience of his fellow members in handling a certain article sold exclusively through merchants as agents under contracts containing stipulations regarding the selling price and those to whom the article should be sold. The discussion brought out the fact that all the trade are not treated alike and those who are too closely restricted will probably apply for better terms.

THURSDAY MORNING SESSION.

The first business taken up was the election of officers. No Committee on Nominations had been appointed, as it was decided better to make nominations from the floor. Practically no contest was made for any of the offices, a single ballot serving to record the will of the convention. The following list shows the result of the election:

PRESIDENT, O. P. Schlafer, Appleton.

VICE-PRESIDENT, Leonard Findeisen, Green Bay.

SECRETARY-TREASURER, C. A. Peck, Berlin.

EXECUTIVE COMMITTEE: J. Kornely, Milwaukee, and E. H. Ramm, New London, each for two years; Andrew Noll, Chilton, and H. L. McNamara, Janesville, each for one year.

Question Box Again.

The Question Box discussion was resumed with the following:

How can we protect our interests against employees not true to our interests?

This question was explained as referring to mechanics employed in members' workshops and not to their clerks. The point was brought out that in busy seasons workmen often become unreasonable and difficult to manage, knowing that if discharged they can readily secure employment in another shop in the same line. It was suggested that the members endeavor to advise each other with regard to employees of this character.

Do you pay for goods that come damaged and you do not accept?

Several gave their experience in cases of this kind, and it was developed that the usual method of procedure is to notify the local agent of the railroad company regarding the damage done, making a claim for the amount involved, but meanwhile paying for the goods, unless it is clearly demonstrated that the damage was the fault of the packer, in which case payment is refused. Most of the members discussing this point stated that they open a regular account with their railroad company, charging the company for damages and crediting them for reimbursements. This discussion ran into a broad discussion of Stove Repairs broken or lost in transit, and the question of how to handle such Repairs to the best advantage in keeping track of them.

What is the best way to mark the cost of goods? Do you add selling expense, and if so, what percentage of cost?

President Schlafer stated that he added freight on heavy or bulky goods, such as Nails, &c., but not on light goods, and made no allowance for the cash discount, as that was presumed to cover a portion of the cost of receiving and placing them in stock. No selling expense was added in putting down this cost.

Ought the retailers buy goods of the jobber or manufacturer who also drums the local retail trade?

This brought out a very general answer in the negative.

Interstate Commerce.

E. P. Bacon, former president of the Milwaukee Chamber of Commerce, addressed the convention, urging action to be taken in support of national legislation to confer on the Interstate Commerce Commission such authority as will enable it to carry out the purpose of the act creating it. Mr. Bacon was given a vote of thanks at the conclusion of his address.

National Retail Hardware Dealers' Association.

President Schlafer made a verbal report regarding the meeting of the National Association in Chicago last March, which he and Mr. Nash had attended as delegates, and gave a great deal of interesting information relative to the practical work done and the important results accomplished by the national body.

M. L. Corey, Argos, Ind., secretary of the National Retail Hardware Dealers' Association, was introduced at this point and made a most interesting address on the subject of the work of the National Association and submitted strong arguments in favor of the Wisconsin Association taking an active part in the affairs of the national body.

At the conclusion of Mr. Corey's address a number of the members spoke in favor of the work of the National Association, and on motion a standing vote was taken on the question of joining, which resulted unanimously in favor of such action.

An Earnest Address by the President

President Schlafer stated that as an opportunity had not previously been afforded for him to thank the association for the honor conferred upon him by electing him president, he would take advantage of the moment, and proceeded to make an earnest address, showing not only his appreciation of the honor, but also his recognition of the deep responsibility attached to the position, and urging all the members to assist him in advancing the objects for which they are united.

Need of an Organizer.

Mr. Teitgen addressed the convention in favor of the employment of an organizer, to be specially engaged for the purpose of organizing local associations. He stated that in some towns the local merchants are not on good terms with one another, and that the work of some disinterested person is needed to harmonize their views and get them to co-operate. The matter was laid over for future consideration.

Turning Down Catalogue House Goods.

One of the members gave his experience in purchasing goods from a house under a guarantee that no sales were made by that establishment to any catalogue house. He had afterward learned that these goods appeared in the catalogue of one of these concerns, and has absolutely refused to receive the goods thus ordered. He believed that all members of the association should pursue the same policy.

THURSDAY AFTERNOON.

The secretary read the following interesting communication, dated January 31, from Robert F. Bell, Weatherford, Texas, secretary-treasurer of the Texas Hardware Jobbers' Association:

We notice that your association will hold its annual meeting shortly. There are some questions we have been agitating which the retailers and wholesalers are mutually interested in.

To accomplish anything the co-operation of all the retail and wholesale associations will have to be had. We give you below a list of the subjects that we should take it as a matter to your interest that you should give as much time to as possible in the discussion of the various subjects:

1. Are you using all the means at your command to eliminate, as far as possible, the practice of reputable manufacturers selling or permitting their goods to be catalogued by catalogue houses?

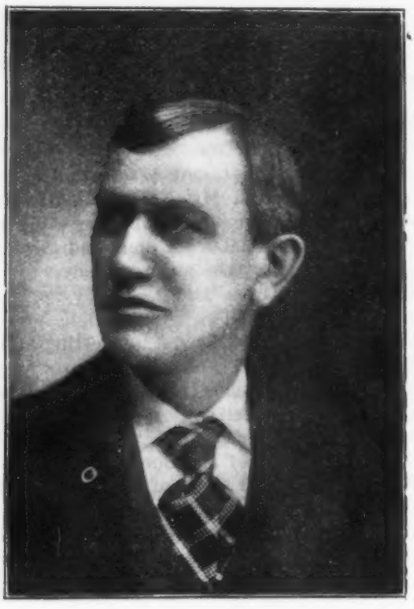
2. Do you favor the present burden on the merchant of 2-cent postage being continued in order to meet the deficit in the

postal department occasioned by the wide distribution of second-class mail matter?

3. Are you fighting the parcels post bill—a measure calculated to tear down the retail trade and build up the department stores and catalogue houses?

4. Are you sitting quietly by and letting the express agent in your town act as agent for catalogue houses and department stores?

Secretary Corey of the National Association called attention to the fact that personal influence should be



O. P. SCHLAFER, President.

brought upon the Congressman from each man's own district in settling these questions.

A letter from the Citizens' Business League of Milwaukee was read, expressing pleasure in the fact that the association is meeting in Milwaukee and hoping that future meetings will also be held in the city.

H. L. McNamara read the following paper on the

Relations of Traveling Men to Retailers.

The traveling salesman stands in several relations to the retailer, and not the least important of these would seem to be his friendship for him in giving him every point of advantage. As a rule there is a motive behind this too obvious to need mention. He is working for his own good while doing good to others, and certainly this is in accordance with good Christian doctrine. The house that employs the salesman doesn't think much of this doctrine, however. The house is apt to consider the doctrine quite unchristian, and sometimes harbors and even gives expression to rather unchristian thoughts.

AN EDUCATOR.

Aside from all pleasantries, however, the traveling salesman has one distinctive function to perform in his vocation, and this function is pre-eminently of an educational character. The traveling agent is an educator, and his most important and efficient work must lie in that direction.

To assume that the sales agent is sent out merely to be on hand when the retailer happens to be out of something would make of him just an errand boy, and to go a step further and say that he is sent out to keep competitors from monkeying with customers would still hardly justify the expense. To be sure, the expense is eventually borne by the retailer, and he in turn gets it out of the consumer. But the point is, couldn't the retailer send in his orders to the house, or any house, by mail if it were simply a matter of ordering what he is out of, and save time and expense? Certainly he could. The agent then would have no particular office to perform.

The fact is, however, that the agent's business is not merely that of collector of orders for goods that the retailer is out of or that he needs for a season's supply. Left to himself, neither the retailer nor the consumer would ever change styles or enlarge the variety of purchases.

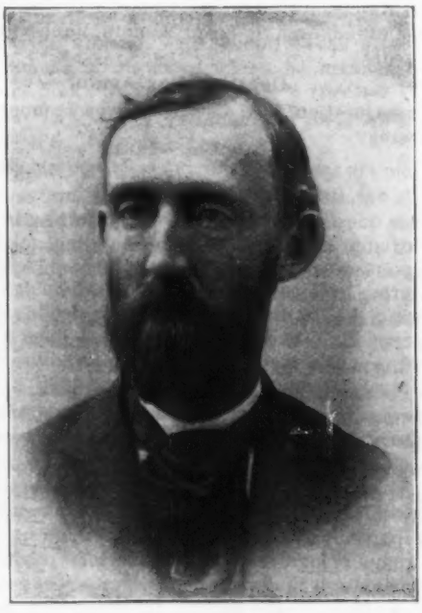
THERE ARE BUT FEW NECESSARY ARTICLES.

Did you ever think how few articles are really required to satisfy actual needs? How few these are can be seen in pioneer towns, where, to start with, only staples are handled. Compare the store of to-day with the store of 50 years ago in the same line, and note the great variety of goods kept now as against then. Very few real necessaries have been added, but the Hardware dealer's stock, like every other, has been greatly enlarged by the addition of new things—things for procuring greater comfort or saving time.

Did the dealer or consumer demand them? No. Anything different from what we are accustomed to is never demanded. If the manufacturer makes or the dealer buys something new and waits for people to want it, there would be a long wait, and this applies to the most popular things in use to-day. The consumer asks for nothing new ever, and the dealer is afraid of new things. He does not want to buy things that have not already an established demand. Right here comes in the educative function of the traveling salesman. He is the one that makes a demand for the thousand and one things that have come into use. He presents the new article to the dealer, and very often he goes and educates the consumer first and shows up the points of merit. If the consumer asks for it there is no trouble in getting the dealer to handle it.

ARTICLES INTRODUCED TO RETAILER AND CONSUMER.

The article, of course, must have merit.. A new article is supposed to be an improvement on old ones. It does better work for the same money or as good work for less money, or it is time and labor saving, or it adds



C. A. PECK, Secretary-Treasurer.

comfort, or it is more artistic in design or fills some new niche in household use. Now all these points, whatever they may be, have to be talked up and explained. The dealer has to be convinced, and it takes a good man to do it. He has got to be "onto his job."

Nearly all the goods we sell nowadays have been added by slow stages. Take the Washing Machine. A few years ago they were not part of a Hardware stock. To-day they are an article of staple commerce. Years before the Washing Machine was a county or village right scheme. It was not to sell Washers, but rights.

whatever that meant. Gradually the machine was perfected, and men were sent out to the trade and to users to show their workings and points of merit, and by a gradual process of educational work the Washer, like thousands of other valuable articles, has become a staple article of use and demand.

THE WRINGER.

The natural tendency is to let well enough alone as to all things that involve an outlay of money or a change

J. KORNELY, Member Executive Committee.

of our habits. More than half the things found on the counter were once so-called new fangled notions, and only by a gradual process were people educated to a point of demand for them. As an illustration of this I will repeat what an old Hardwareman told me the other day, which is right to the point. We were speaking of the Wringer business. He said: "I commenced business in the early sixties. Traveling salesmen in those days were not as numerous as in later years. A young fellow came along one day with a machine for wringing clothes. He knew how to work it and how to talk it to perfection. He spent the best part of two days trying to educate me in the mysteries and uses of his machine. As a last resort he wanted me to let him come to the house and show the women folks how it worked. But my wife, after seeing and trying it, said she didn't want any such new fangled notions in her house. The old way was plenty good enough, and it would be a long time before any of those chaps could convince her.

"Failing to make me buy he offered to put a dozen in stock for me, 'no sale, no pay;' but I wouldn't even do that. My wife said it was no good and our neighbor's wife said the same thing. But the fellow got my competitor to put in a few, and he sold them. Six months later another agent came along. He sold my competitor more this time, and I put in a few in self defense. The price was $80 a dozen then, or somewhere along there, and no comparison to the present article. Look at the output of Wringers to-day," the old Hardwareman said; "every family in the country, and in other countries as well, uses the Wringer."

OPPOSITION TO NEW THINGS.

With as good a thing as the Wringer, as the above narrative shows, what hard work it was to get the people to use it. It took years of work to educate them up to it, and it was the traveling salesman who did the educating. Man does not willingly relinquish the things that he has been used to, but beyond that he is just as unwilling to accept anything new. Man is in reality not the progressive being that is claimed for him, and were the incentive of money making left out I doubt if much progress were made or many comforts added. Civilization, in fact, may be summed up as representing the cultivation of taste and of new desires and needs, and the more complex and various these desires and needs become the higher we proclaim the civilization.

In these few minutes allotted to me I think I have made out my case as well as could be done in so short a space—namely, that the traveling salesman is an educator and a very important factor in the civilizing influences of the world.

The secretary-treasurer was authorized, on motion, to pay the dues to the National Association out of the general fund.

Receipts for Remittances.

The Question Box was resumed.

Is it desirable to retailers to have wholesale houses not acknowledge payments by their customers?

Although some insisted that receipts are always desirable when money is paid, the fact was developed that the dealers themselves are gradually dicontinuing the practice of asking for receipts.

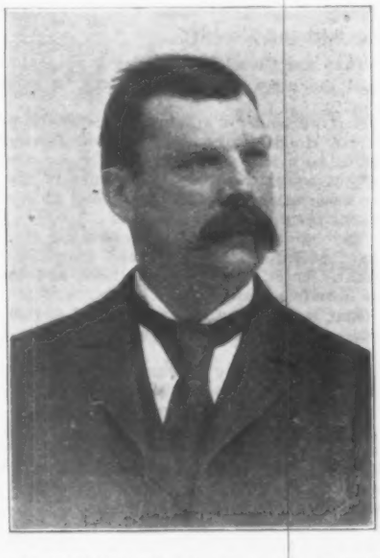
Catalogue Houses, &c.

What points have we gained in regard to department stores?

Mr. Peck said the fight is now being made more against catalogue houses and supply houses and jobbers and manufacturers selling to such houses.

Mr. Noll said that manufacturers and jobbers should list their goods to catalogue houses at prices which the retailers could meet. He mentioned an instance in which a sewing machine company had made a sale of Machines to a house who cut the manufacturers' price, and when the latter tried to place another order it was refused until a settlement was made of the damage done. This, in his opinion, is the way to reach them.

Secretary Corey stated that over 1000 letters had been written by the National Association to manufacturers on this very subject. It is impossible to prevent sales by manufacturers to catalogue houses, but they can be asked to make a restriction on the prices at which



H. L. McNAMARA, Member Executive Committee.

the goods are to be sold. This is a lawful transaction, and when a manufacturer makes a sale with such a stipulation it binds the party who buys from him not to sell under the stipulated price. The National Association is working with the Jobbers' Association to secure its co-operation with the retailers. The jobbers recognize the fact that all sales made by catalogue houses are an injury to them, because the goods thus sold pass through neither the jobbers' nor the retailers' hands.

A general discussion then followed relative to the

manner in which the competition of catalogue houses could be met. It was generally agreed that if it was possible to see a consumer who was considering the purchase of goods from a catalogue house, it would be an easy matter to convince him that he could purchase the same class of goods from the local dealer at the same, and possibly a lower, price, taking into consideration the freight and express charges. The only trouble is to know when parties are considering such purchases.

Gasoline Lamps for Lighting Stores.

Are any members using gasoline lamps in lighting stores and with what result?

Several reported the use of such lamps, which have been found very cheap and very satisfactory. No trouble has been experienced with insurance. One member stated that he used 14 lamps in his store, burning on an average four hours a day, which cost a total of $45 the past year for gasoline mantles and other supplies. He had kept a careful account to learn the exact cost.

Secretary Peck read a paper by H. C. Scofield of Sturgeon Bay, who was unable to be present. The title of this paper was "Care, Management and Display of Retail Hardware." It was presented in our last issue.

A vote of thanks was given to Mr. Scofield and Mr. McNamara for their papers, and a vote of thanks was also given to the retiring officers by a rising vote.

The president and secretary were elected delegates to attend the meeting of the National Association in Chicago on March 12.

Secretary Peck caused much amusement by reading an old Hardware bill, dated 1863, which contained such items as 49 pounds of Nails at 7 cents per pound; one Coal Scuttle, $1.75; two pairs of Butts at 35 cents, and two Rim Latches, $1.25.

Vice-President Findeisen took the chair, as President Schlafer was obliged to retire to attend a prior business engagement.

Resolutions.

Reports of committees were called for and the Committee on Resolutions presented the following, which were adopted without dissent:

Resolved, That our association extend a vote of thanks to the members of the press for their courtesy in reporting our meetings, &c.

Resolved, That we tender a vote of thanks to the proprietors of the Republican House for courtesies shown for our comfort and in furnishing us a hall free of charge for our meeting.

Resolved, That we extend a vote of thanks to the National and Minnesota associations for their courtesies in sending delegates to represent them at our convention.

Resolved, That we thoroughly appreciate the successful efforts made by the Hardware jobbers and manufacturers who have so pleasantly entertained us while here, and that we extend them our heartfelt thanks.

Resolved, That we oppose the enactment of any parcels post law that would retard and curtail any legitimate Hardware trade.

Resolved, That we heartily concur in the efforts of kindred associations to have such laws enacted as shall afford the retail merchant a better protection in dispensing credits.

Resolved, That whereas Chas. Kartak of Oconomowoc has been called away by death, we as an association hereby tender our sympathy to the bereaved family, relatives and associates, and this resolution be spread on our records and a copy sent to the widow of the deceased.

Resolved, That the secretary be requested to ask Stove Repair houses to mark all Repairs sent for what Stove they are for before shipment.

The following resolutions were also adopted:

Whereas, The people of this country are confronted with the formation of gigantic railway combinations, by means of which over three-fifths of the railway mileage of the country has been brought under the control of a small group of capitalists, and the process is going rapidly forward; and

Whereas, The Interstate Commerce Commission, which was created for the purpose of protecting the public from unreasonable exactions and unjust discrimination on the part of the carriers of the country, has been divested by recent decisions of the Supreme Court of the United States of the authority it previously exercised to this end; and

Whereas, A bill, prepared under the direction of the Executive Committee of the Interstate Commerce Law Convention, held at St. Louis, November 20, 1900, to so amend the Interstate Commerce act as to confer on the commission such authority as will enable it to carry out the purpose of the act, was introduced in the House of Representatives January 9 last, by Hon. J. B. Corliss of Michigan, designated as H. R. 8337; therefore,

Resolved, That the Retail Hardware Dealers' Association of Wisconsin, assembled in convention at the city of Milwaukee on the 6th day of February, 1902, hereby expresses its approval of the said bill and its earnest desire for its speedy passage, and does hereby respectfully request the Senators and Representatives from this State in Congress to give it their hearty support and exert their influence in every proper way to secure its early enactment.

Resolved, That the secretary be instructed to forward a certified copy of the foregoing preamble and resolution to each of the said Senators and Representatives, immediately upon the closing of this convention.

The Auditing Committee reported that the books of the officers had been examined and found correct.

The convention adjourned *sine die* at 4 p.m.

FEATURES OF THE CONVENTION.

This convention was noteworthy for the great interest manifested by the members. The attendance was large at every session, and the discussions were particularly lively and instructive. An unusual proportion of the members seemed to be ready to enter into the discussion of any question.

Many of the dealers brought in specimens of their stationery in accordance with a request made by Secretary Peck. Each man's specimens were collected in one package, so that his ideas regarding almost every department of his business could be observed. The stationery was laid on the president's table, and proved the center of attraction during intermissions. Many dealers received valuble suggestions relative to points upon which they desired to arrange their affairs more systematically. The stationery covered not only statements, bills and advertising circulars, but also time tickets, Stove storage receipts, Stove Repair blanks, &c.

The convention was pleased to be favored with a visit by M. L. Corey, Argos, Ind., secretary of the National Retail Hardware Dealers' Association. Mr. Corey greatly pleased the members with his remarks, being able to express himself fluently, forcibly and convincingly. Another visitor from a sister association was Julius Schmidt of Wabasha, Minn., who presented the advantages of the Minnesota plan of insurance in a satisfactory manner, which will probably be the means of inducing considerably more insurance of this character to be placed by Wisconsin retail merchants.

Entertainment and Souvenirs.

The members were entertained very agreeably by the Milwaukee jobbers and manufacturers. They provided free admission for all members to performances in two of the local theaters on Wednesday and Thursday evenings. The jobbers and manufacturers who contributed to this evidence of their kindly feeling were the Wm. Frankfurth Hardware Company, National Enameling & Stamping Company, Brand Stove Company, J. P. Lindemann & Sons, Speich Stove Repair Company, Boehm Stove Repair Company, John Pritzlaff Hardware Company, Fuller & Warren Stove Company, Geuder & Paeschke Mfg. Company, A. J. Lindemann & Hoverson Company, Washington Cutlery Company and Lindsay Bros.

The John Pritzlaff Hardware Company distributed an unusually attractive memorandum book with celluloid covers, and having several pages of useful information, together with calendars for 1902, 1903 and 1904.

The Estate of P. D. Beckwith, Dowagiac, Mich., distributed a nickel plated match box, decorated on one side with a view of a Round Oak Stove and having on the other side a picture of the now famous Indian, Doe-wah-jack.

Morley Bros., Saginaw, Mich., distributed a silver bonbon spoon made in the form of a long handled spider, the bowl bearing an inscription referring to the firm's trade-mark, Wedgeway (we wedge our way).

W. H. Bennett, manager Reading Hardware Company, Chicago, distributed a box containing pencils with a neat aluminum case, designed for the double purpose of protecting the pencil in the pocket and making an extension holder while using it. The box was

inscribed, "We will accept orders for Builders' Hard ware written with this pencil."

The Brand Stove Company, Milwaukee, distributed a thermometer attached to a crystaloid panel, making a highly ornamental article for indoor use. The panel bore a suitable inscription alluding to Brand's Stoves and Ranges. The company further favored every one in attendance with large celluloid badges bearing a picture of a Range, which all seemed pleased to wear.

The L. J. Mueller Furnace Company, Milwaukee, distributed a celluloid grip tag to be attached to a grip handle, having two leaves, enabling the name and address of the owner to be written on the inside.

Exhibits.

The exhibits shown at this convention compared favorably with efforts of the same character made in previous years. The Reading Hardware Company displayed samples of their most artistic designs. W. H. Bennett, manager of the company's Chicago branch, did his utmost to entertain the members.

The Wilcox Mfg. Company, Aurora, Ill., represented by H. O. Spencer and E. H. Knapp, showed a complete variety of the products turned out by this company, comprising Door Hangers and other specialties, as well as specimens of their Velox Grindstone and their new Modern Atlas, which is the same Stone mounted in a wooden frame. These Stones run on ball bearings, and excited great interest by the manner in which their working parts are arranged.

D. O. Macquarry, Fred. Tusher and W. L. Ladd, representing P. & F. Corbin and the Corbin Cabinet Lock Company, made a fine exhibit of Builders' Hardware.

B. F. Isbell, representing Lawrence Bros., Sterling, Ill., showed a complete line of the Door Hangers, Hinges, Hooks and other specialties manufactured by his firm.

Walter E. Voigt, representing the Berger Mfg. Company, Canton, Ohio, exhibited specimens of their Classik Steel Ceilings.

W. J. Norris, representing the Wheeling Corrugating Company, Wheeling, W. Va., also showed a number of samples of Steel Ceilings.

F. W. Lynn, A. E. Winter and A. B. Blanxius, representing Hibbard, Spencer, Bartlett & Co., Chicago, made a very large display of Sewing Machines, Bicycles, Sporting Goods, Summer Goods, &c.

Chas. E. Bock, representing the Illinois Wire Company, Chicago, exhibited samples of Bale Ties and Lawn and Stock Fence.

E. J. Megow, representing the Stowell Mfg. & Foundry Company, South Milwaukee, Wis., exhibited samples of the specialties manufactured by this company, among which the new Rex Flexible Barn Door Hanger was conspicuous. In the same parlor an exhibit of the Clutch Wrench manufactured by Dent & Co., Waukesha, Wis., was made.

A. C. Selleck, Chicago, showed one of his new Common Sense Fuel Savers, which is a new design of drum or radiator to be attached to a stove pipe.

Geo. Auer, representing the Auer Register Company, Toledo, Ohio, exhibited samples of his patent Side Wall Register for hot air furnaces.

J. D. Warren of the J. D. Warren Mfg. Company, Chicago, displayed specimens of Warren's Adjustable Hardware Shelving, with which so many Hardware stores are now being equipped.

Visitors at the Convention.

J. C. Bump, Eclipse Stove Company, Mansfield, Ohio.
H. L. Mosher and Geo. T. Adams, Estate of P. D. Beckwith, Dowagiac, Mich., manufacturers of Round Oak Stoves and Furnaces.
Edward Schuller, Jacob J. Vollrath Mfg. Company, Sheboygan, Wis.
W. H. Bliss, Robinson Furnace Company, Chicago.
Chas. Lindemann, A. J. Lindemann & Sons, Milwaukee.
W. F. Hyde, A. D. Meyer, J. F. Burks, J. H. McHenry, and W. B. Lyman, Brand Stove Company, Milwaukee.
Geo. W. Trout, Geo. W. Trout & Co., Chicago.
John J. Sinzich, Geo. H. Bishop & Co., Cincinnati.
Chas. A. Robertson, Allerton, Clarke & Co., Chicago.
Day Gordon, S. H. Corbett and Jos. Mertle, Morley Bros., Saginaw, Mich.
M. Ledwidge, Follansbee Bros. Company, Pittsburgh, Pa.
R. H. McMahon, C. Sidney Shepard & Co., Chicago.
H. W. Smith, Joliet Stove Works, Joliet, Ill.
D. A. Lewis, Robeson Cutlery Company and Rochester Stamping Company, Rochester, N. Y.
G. A. Metcalf, Wallis, Robinson & Co., Chicago.
Chas. Lehrkind, Washington Cutlery Company, Milwaukee.
P. H. Luitink, Luitink & Sons Mfg. Company, Milwaukee.
H. S. Benz., Pittsburgh Plate Glass Company, Pittsburgh, Pa.
H. A. Sheldon, Hunt, Helm, Ferris & Co., Harvard, Ill.
Herman D. Cantsbury, Toledo Millimeter Scale Company, Toledo, Ohio.
Wm. Tubesing and T. Musgrove, Geuder & Paeschke Mfg. Company, Milwaukee.
Henry M. Gay, Chas. Haekler, Fred. Hayden and Paul Zach, Wm. Frankfurth Hardware Company, Milwaukee.
Fred. Pritzlaff, E. J. Stansbury, Geo. J. Davies, Chas. Mohr, A. Killian, Geo. Daniels, F. F. Stowers, John Peterman, and others, John Pritzlaff Hardware Company, Milwaukee.
Louis J. Kuehn, Milwaukee Corrugating Company, Milwaukee.
H. L. Hopper, Canandaigua, N. Y.
Daniel Stern and S. P. Johnston, *American Artisan*.
Geo. W. Cope and H. H. Roberts, *The Iron Age* and *The Metal Worker*.
A. A. Norton, *Stoves and Hardware* and *Iron and Steel*.
Howard Bement, H. S. Bartholomew, W. H. Newburgh and Lee A. Smith, E. Bement's Sons, Lansing, Mich.

WILLOUGHBY FORK & MFG. COMPANY'S CATALOGUE.

THE WILLOUGHBY FORK & MFG. COMPANY, Willoughby, Ohio, have just issued a complete and handsomely illustrated descriptive catalogue of Steel Goods containing 62 pages. This book shows complete lines of Hoes, Rakes and Forks for almost every purpose, including Field and Garden, Ladies' and Boys', Street and Mortar, Planters' Cotton Chopper and Weeding Hoes, Potato Hooks, as well as an extensive line of Rakes and Forks. The first quality goods are designated as the Willoughby grade; the second, National grade, and the third quality as the Ohio grade, which affords a range of qualities and prices for the requirements of different markets. Attention is drawn by the manufacturers to the following facts: That they manufacture every item to be found in the steel goods line; that their factory is new and modern, and that they have a total capacity of about 300 dozen steel goods of all descriptions.

TRADE ITEMS.

H. B. SHERMAN MFG. COMPANY, Battle Creek, Mich., have recently purchased the Acme Brass Works of Elkhart, Ind., and removed their entire plant, consisting of machinery, patterns, stock, tools, &c., to Battle Creek, where it has been incorporated with their main plant. The company are now ready to quote prices on and furnish a full line of Automatic Couplings, Brass Hose Pipes, Steam and Common Couplings, Hose Nipples and other goods of this nature.

JOSEPH H. CHERRY, in charge of the export department of Sargent & Co., 149-153 Leonard street, New York, is going to Mexico in the interest of that concern about February 15, and will return by the way of Cuba. He will call on the Hardware dealers in those countries for the purpose of more thoroughly introducing their general lines of Hardware, and especially Builders' Hardware. This trip will be largely of an educational or experimental nature, and will take, it is thought, about two months.

THE firm of Miller, Sears & Walling, 100-102 Reade street, New York, have recently been incorporated under the laws of the State of New York with a capital stock of $50,000, the present style being the Miller, Sears & Walling Company. The following officers have been elected to conduct the business, namely: President, William S. Miller; vice-president, Seymour M. Sears; treasurer, Burroughs B. Walling; secretary, John A. Gouldrup, and general manager, Arthur S. Bailey. They do a wholesale Hardware businesss and represent several concerns as manufacturers' agents. They are distributing agents for the Kearney & Foot Files, the Simonds Cross Cut Saws and the Ely Hoe & Fork Company. An arrangement has just been effected with the William Schollhorn Company, New Haven, Conn., whereby the concern will carry a complete line of the Schollhorn Company's Bernard, Paragon and Lodi Pliers and Tools.

Pacific Retail Hardware Association.

OWING to heavy and unexpected pressure on the space in our last issue we were obliged to omit a portion of the report of the annual meeting of the Pacific Retail Hardware Association. Accordingly we give in this issue a report of Thursday's proceedings and the banquet, as well as the paper on "Reciprocity in Trade," read by Oscar C. Schulze, Dixon, Cal.

THURSDAY'S SESSION

This being the day for the joint meeting of the association with the wholesale, manufacturing and Implement trade, the joint convention assembled at 9.30 a.m., and the following representatives from the wholesale, manufacturing and Implement interests of San Francisco and Sacramento were present:

Pacific Hardware & Steel Company, San Francisco.
Dunham, Carrigan & Hayden, San Francisco.
Holbrook, Merrill & Stetson, San Francisco.
Baker & Hamilton, San Francisco.
W. W. Montague & Co., San Francisco.
Deere Implement Company, San Francisco.
Studebaker Bros. Mfg. Company, San Francisco.
D. M. Osborne & Co., San Francisco.
Oliver Chilled Plow Works, San Francisco.
Benicia Agricultural Works, Benicia.
Holbrook, Merrill & Stetson, Sacramento.
Baker & Hamilton, Sacramento.
Schaw, Ingram, Batcher & Co., Sacramento.
Thomson-Diggs Company, Sacramento.
Waterhouse & Lester, Sacramento.
California Moline Plow Company, Stockton.
Holt Bros. Company, San Francisco.

A. C. Rulofson of Traffic Committees, Hamilton W. Barnard, secretary Pacific Coast Hardware & Metal Association of San Francisco, and several others representing the commercial and manufacturing interests of the Coast, were present by invitation.

The president, in opening the meeting, reviewed the discussions of the previous day, and congratulated the Wagon, Vehicle and Implement dealers on the satisfactory results of the agreements which had been entered into between the wholesale and retail trade, whereby the wholesaler had relinquished to the retail trade the business of selling to the consumer, and he expressed the earnest desire of the association that the present arrangements be upheld during the forthcoming year.

Satisfactory assurance was given by the various representatives present.

Differentials and Classification of Customers.

The question of adherence to the present differentials and classifications of customers was next taken up, and the views of those present were unanimously in favor of a strict adherence thereto, and an extension of the differentials to many lines on which the retailer did not receive his fair compensation as chief distributer. It was also argued that a retailer is a merchant who purchases goods with the intention of disposing of them to the consumer. The jobber makes use of his position as a middleman and large buyer in getting concessions from the manufacturer and is thus protected. The retailer then may ask with all fairness that any jobber who sells directly to the consumer should be cut off from those privileges and concessions on the grounds that he is obtaining these concessions under false pretenses.

These ideas were fully explained by the president, and developed considerable discussion as to the exact status of the wholesaler and retailer, which were generally concurred in and approved by all present.

Some difference of opinion as to the extent of the present differentials being expressed by both sides, on motion of Oscar C. Schulze it was ordered that the Executive Committee be instructed to take this question up with the wholesalers at an early date, with the view of harmonizing the various interests.

After numerous congratulatory remarks, notably by A. C. Rulofson, Andrew Carrigan and A. L. Scott, on the present happy relations, on motion the convention adjourned.

The Banquet.

In the evening, pursuant to invitation by the Committee of Arrangements, the members of the association and other visitors were magnificently entertained at an elaborate banquet. A fine orchestra enlivened the occasion with musical selections throughout the evening. The *menu* was as follows:

CALIFORNIA OYSTER COCKTAIL.
MOCK TURTLE SOUP.
Drop into the soup, or fly the coop,
The pain is about the same;
A mule by any other name
Would kick us just the same.
SAUTERNE.
BROILED STRIPED BASS.
(The tenor omitted by special request.)
POMMES PARISIENNE.
(Never saw Paris.)
CHEESE STRAWS. RIPE OLIVES.
A straw shows which way the wind blows.
SALMI OF CANVASBACK DUCK.
CELERY EN BRANCHE. FRENCH PEAS.
"O better, no doubt, is a dinner of herbs,
When seasoned by love, which no rancor disturbs,
And sweetened by all that is sweetest in life,
Than turbot, bisque, ortolans, eaten in strife."
ROMAN PUNCH.
In that elder day, to be a Roman was greater than a king.
CLARET.
ROAST YOUNG TURKEY, CHESTNUT STUFFING.
(This is no chestnut, believe me, Cassius.)
CRANBERRY SAUCE.
CREAMED POTATOES. ASPARAGUS.
BUTTER SAUCE.
"We may live without poetry, music and art;
We may live without conscience, and live without heart;
We may live without friends, we may live without books,
But civilized man cannot live without cooks."
CRAB SALAD EN MAYONNAISE.
(En Mayonnaise is another term for locomotor ataxia.)
POMMERY SEC.
FROZEN NESSELRODE PUDDING.
"The proof of the pudding is in the eating."
ASSORTED CAKES. NUTS AND RAISINS.
AMERICAN AND SWISS CHEESE.
CRACKERS.
CAFE NOIR.
SUB MENSA DESCENDIT.

Judge F. T. Nilon of Nevada City acted as toastmaster, and the responses were enjoyed by all present. One of the most happy occasions in the history of the association was thus brought to a close, with the toast to "Our Next Happy Meeting," and the convention dispersed with nothing but words of praise for the Committee of Arrangements and the citizens of Nevada City and Grass Valley.

RECIPROCITY IN TRADE.

BY OSCAR C. SCHULZE.

Your Executive Committee saw fit to assign to me the duty of preparing a paper on "Reciprocity in Trade." My views on this matter are so pronounced that I have, at least once, been called a reciprocity crank, but it did not hurt my feelings at all; in fact, I was pleased to be called a crank for advocating a business principle which was, in my judgment, right, for I believe that success in business depends a great deal upon the principle of rewarding those who show you that they are your friends. We Hardwaremen have our trials and tribulations, and not too seldom do we get a drubbing which seriously upsets our tempers. This is the case with your humble servant at this time, and therefore you must overlook all imperfections.

FORTUNATE CALIFORNIA.

Right at the outset I wish to say that California is my adopted State, having lived here for over 40 years. Here we have the grandest country in the world; grain fields second to none in the United States; vineyards whose products rival the famous ones of France; orchards that cannot be equaled anywhere else; timber as fine as any; mines rich with gold, where, unlike the wealth of the frozen north—where each ounce of gold is bought with the sacrifice of a human life—the miner can prospect and develop his claim and after his day's labor roll himself up in his blankets, with the blue sky as his roof. The cattle and sheep industry is one of

the most successful, for we do not know what frost and snow are. Other resources have we in untold numbers, to say nothing of the beautiful mountain scenery and, above all, such a life giving climate. Ah! truly, we, who are proud of being Californians, have every reason to be thankful that our lot has placed us in the midst of such surroundings. We have a magnificent harbor, a grand city, lying just inside of the Golden Gate, which is the key to the Orient and to our new possessions, the city of San Francisco, a great big broad gauge city, filled with business men who have the welfare of the whole State at heart, and who extend the greatest accommodation to the retailer of the interior. Therefore we who are loyal to our State, who are proud of being called Californians, should not forget that every dollar of trade that we can leave within the State acts to our benefit, and he is made of the right stuff who can see further than the immediate return of a few cents' actual profit at the time.

WHAT THE ASSOCIATION HAS ACCOMPLISHED.

The question of reciprocity in trade seems to my mind to have but one side, and I think that no argument can shake my position herein. We Hardware retailers have formed this association for the welfare of all dealers in our line and for bettering our business and business relations. The forming of our association has borne a large crop of good fruit. It has brought the retailer in closer touch with the wholesaler, and has been the means of cementing more closely the business relationship between us all. It has taught many of us that our competitor is as good a man as ourselves. Our association has taught us that the wholesaler of our coast is a man who is ever ready to assist us. We have had several meetings with them, have asked them for much, and at all times have been met in the spirit of justice and fairness. We have received concessions and favors far beyond what we originally expected. So far we have never asked for anything reasonable but what has been granted, or an honest effort made to meet us on a plan of the greatest equity, and as a result we to-day have differentials on Wire, Nails, Iron, Steel, Shoes, Pipe, &c., to say nothing of the disposition on the part of all our wholesale friends reducing and actually stopping the habit of selling goods at retail. All of you know that this was serious cause for complaint, but the wholesaler recognized the justice of our contention and met us, with the result as stated; and, still further, if we find any serious thing threatening our trade, we appeal to the wholesaler and he is ever ready to extend us a helping hand.

DOING AWAY WITH TRADE EXCURSIONS.

You all remember the trade excursions which were inaugurated in the interest of department stores. The Hardware dealer was threatened seriously, as the general merchant had already felt the fangs of this unfair competition. Your Executive Committee called on the San Francisco wholesaler for help. I call to mind very well that some of our members thought the attempt would be useless, but it was not so. The wholesalers, seeing that our cause was just, joined hands with us, gave us the advice and counsel of their attorneys, free of charge, and arranged a meeting of your Executive Committee with the railroad officials, who took up our fight, with the result that trade excursions are long since a thing of the past.

THE WHOLESALERS OF OUR COAST

are men who are approachable, men who are at all times willing to listen to you, are ever courteous and truly Californians in every particular. In extending us all these acts of business friendship, however, they do so with the expectation that their efforts will be appreciated, and that the retailer will do all in his power to show his appreciation in a substantial manner by throwing his trade to California houses. Every one in business, whether wholesaler or retailer, must make a reasonable profit or else he would fail; so, this being an undisputable fact, why not give this legitimate profit to the wholesaler whose home is in our own land—to him who is one of us in the fullest sense of the word? Your Executive Committee assured the wholesalers of our association's loyalty. Did this committee do right? I think so, for we are morally bound to do our business with our friends.

RECIPROCITY IN TRADE

as a theory is grand, but it is to be feared that some of our members are for reciprocity when it brings them profit undisguised, but they become lukewarm when the favor just granted, or act of friendship, is a thing of the past. In other words, they are willing to get under the reciprocity umbrella during a storm, but when the sun shines throw that same reciprocity umbrella into a corner. So many of us are prone to give the wholesaler such favors as are in our judgment his due, and often this is the small end of our trade. Did you ever stop to think that the Eastern traveler does not want to sell you Nails, Wire or other heavy articles, in which the margin is small, but is keen to sell you Shelf Hardware, Cutlery, &c.? and in this regard I awaken to the fact that this self same Eastern man will sell Cutlery, &c., to the druggist and newsdealer in direct opposition to you, thereby creating a bad competitor, for these people look upon this line as an outside line and sell it at a ruinous rate of profit. But the real cause of a number of our members, and even nonmembers, buying from Eastern houses, is the spirit of thoughtlessness which often prevails, or a lack of acquainting ourselves with the true market quotations. Often if we would give a wholesaler a chance to figure before placing the order East we would be astonished at the small difference, if any; but the Eastern traveler comes into your store prepared to attack your weakest point; he represents certain prices East, and tells you what the freight will be, what the same goods will cost you in San Francisco; but does he tell you the lowest San Francisco price? No! That is not his business. It is to show the widest possible difference in his favor.

Some may say that they cannot thus be fooled. I have been in my business for many years and I confess to you that I can be trapped on some goods, for these travelers have cultivated highly the art of drawing comparisons. Their job depends upon it. No little tricks of trade are overlooked, for they are expected to sell the goods. You never see any of the firm—they have too much to do at home. All they care for California is to sell so many goods. How many of us, after having given an order and received the goods, can remember just what he was told the freight would be, or whether it all just came out as represented. The quality so often suffers in the mad rush to quote a low price. Above all, the trade we have belongs to our State, just as much, we will say, as the trade around Chico belongs to Chico.

THE EASTERN WHOLESALER

had a scheme on foot only a year ago to almost wipe out the differential between carloads and less than a carload. He told us this was to benefit the retailer, but had this matter gone through where would the Hardware retailer have been? Even now at times we see parties getting a Buggy or Hardware from the East, but if the Eastern jobber had succeeded in wiping out or materially reducing the differential of carload and less than carload, you would have seen trouble galore for us retailers. The San Francisco wholesalers did all in their power to retain the rates as they were, and well it is that it is thus. The Eastern traveler drops off the car with his grip, and, if possible, may leave on the next train. He has no fixed place of abode within our State. The clothes he wears are bought outside of this State. Every dollar he earns finds its way East. He has no home, does not maintain a household, pays no license or taxes. How different with the wholesaler of our State! He and his travelers do all that the Eastern man does not do. He hires help, who, in time, become the heads of families and help to build up our State. This is what we need so badly—more population. We have an untold field for all kinds of industries, and there is no reason why we should not have factories of every description, nor why we should not have a much larger population. This plan of buying in the

East is one of the causes of the trouble. Why should we join hands with other States who have no cause in common with us, who have use for us only when they can sell us goods? Why should we give them the profit which rightfully belongs to the wholesaler of this coast?

In this connection I wish to say that there are many wholesale houses on the Coast who, being awake and up to date, will do all in their power to supply the trade of our State at as reasonable rates as any house East. All that is necessary is to give them a chance to figure on prices before placing an order East. A very important point in this case is that the minute a line of goods is bought East all sentiment is thrown aside and cold business principle faces us. The terms are stamped plainly on the invoice, and, if not so paid, a draft comes through the bank. But should a California house draw on us, we would feel very much unsettled. We often have our accounts carried by our Coast houses for months, and receive many favors, which we would not dare ask of our Eastern houses. The wholesaler of this State needs us, and we, in turn, need him. It pays the wholesaler to be friendly with us. At the same time our obligation is mutual. The trade of the retailer is of some value to the wholesaler, but if the Coast houses were dependent on our trade only, how many wholesale houses would we have? They are branching out in all directions, and making San Francisco the center of distribution, and what helps San Francisco is of great importance to all California.

IN COMING INTO OUR STATE

with no interest therein, save a catalogue, the Eastern houses are in reality pirates on our sea of trade, and we should be well advised as to what real gain is before giving such an one an order. How do we feel when one of our customers, whose patronage rightfully belongs in our territory, and whom we have always treated fairly and never overcharged, takes the gilded bait thrown out by some one, whose place of business is far distant, and who does not help our town at all? It "jars" us; we say some emphatic words and wonder what has become of the honor and appreciation in some men. There is the identical situation that the Californian wholesaler is in when, without cause, we leave him and buy in the East.

Some dealers have told me that they have saved 10 per cent. on a certain article by buying East; but have they saved it? We are all human. A great desire swells in our breasts to climb the ladder of business success. We have been shrewd and bought these goods at 10 per cent. less than our neighbor. Here is a fine chance to undersell our competitor and still make as much as he; but what a delusion! Our neighbor is also a man with some business ability. He does not allow you to take his customer away without an effort to retain him, and a merry war is the outcome. Instead of saving 10 per cent. a loss in reality has been made, and bitterness is sown among our neighbors, where peace and good fellowship should reign. We must all make a fair profit. It costs us store rent, clerk hire, taxes, insurance and other expenses to run, and now and then a bad account creeps in, all of which has to be paid out of our legitimate profit before anything is left for our investment and ourselves. Warfare should be avoided, for while we wrangle the shrewd buyer reaps the benefit, and we weaken our position and show to the business world that we are devoid of real business principle. Life is short at best, and it stands us in hand to make hay while the sun shines, and not waste the days of our strength in ruinous warfare.

CUTTING PRICES.

While I am drifting away from the topic which has been assigned to me, I cannot refrain from saying just a word in reference to cutting in prices. In the two score and five years that I have had the responsibility of managing my business, I have never allowed myself to be entrapped into a cut war. The rule to which I have adhered most persistently is to mark my goods at a just and fair profit, then if a competitor cuts under, to follow that cut where I feel warranted in doing so, in order to retain my customer, and where I feel that it is to my interest to do so; but I never cut under, for it has a two-fold danger. 1. It leaves your customer in the belief that you originally overcharged him; then it enrages your competitor, who at times loses his reason, and in a frenzy goes you one better; but if you go along in the even tenor of your way, meeting cuts that you feel to your interest to meet, saying nothing but sawing wood, your competitor does not know where to find you. Another plan that I have often adopted with good results is to meet my competitor, not to advance prices, but to pass a pleasant word and refer to the cut in a jocular way, letting him know that I would meet his cuts. But this is transgressing, and I will get back to my subject.

ANOTHER PHASE OF PATRONIZING EASTERN HOUSES

is the danger of getting unsalable goods and overbuying. If goods are received from a California house and they prove to be slow selling or unsalable, I have never yet found one of our houses who would not take back these goods. But how is it with the Eastern houses? The goods once out can never be returned. I bear in mind a case in point which happened to a member of our association not many months ago. He placed an order for an assortment of Lamps with an Eastern house, but they required an irregular style of chimney. Inasmuch as he would have these lamps in stock, he was obliged to have 3 dozen chimneys to fit these particular Lamps. When the goods arrived he received notice that the Lamps had been sold out, but the chimneys came along. They were not worth the freight one way, much less to return them, and are banged around, as many other unsalable goods are, and finally sacrificed in order to get them out of sight.

THE SUCCESS OF MERCHANDISING

is to keep a clean stock, have no old goods and be continually getting new stock. How can one do this by buying East? You often have to buy a full package from the East, when from a Coast house you would buy a fourth or third of same. It takes an exceptionally bright buyer to steer clear of the danger of overbuying, and overbuying is a trade cancer which eats two ways —interest on one side and deterioration on the other. It is not always gold that glitters.

I learned a lesson 20 years ago which impressed itself firmly on my mind, and although it cost me $80, it was well worth it. One day a finely dressed man, followed by a colored porter carrying a couple of sample cases, came into my office and unfolded a most glowing tale of a wonderful Sash Fastener. The price was only 10 cents a set, and the retail price 25 cents. He would give us the entire sale of our town. The advantages were many, burglar proof, &c., he would paint signs on all the fences leading to town, bill all barns and create such a demand that we would make a big thing of it. I was one of those "suckers" of which they tell us one is born every minute. I took the hook and he had me down for 6 gross before I could say scat. He, of course, made immediate delivery of them. They hung around for years, and I finally sold the whole lot for $5 to a street fakir. As they went out of the door, I dropped a tear of sorrow at parting with such an old friend, but said Amen, and have been ever since afraid of overbuying.

BUYING AT HOME.

Doubtless many of you have such old friends hanging around on your shelves, the result of overbuying. It rarely ever happens that one overbuys in getting goods from our Coast houses, for we can get them on such short notice that we are always more conservative in buying at home. It has been ever thus; the prophet from afar is hailed with open arm and his assertions are taken for gospel truths, but let us turn a deaf ear to the tempter's voice. We can do as well at home, and home in all ages has been considered the most sacred place. The State of California is our home. Let us, then, be loyal to it, remembering that even if a small difference is paid to our own wholesale houses, we are stockholders in this great commonwealth. If our wholesaler is prosperous he will extend his business, employ more help, who in turn will rear families who will consume our grain, fruit and wool and our prod-

ucts of all kinds. I believe in being a Californian from the bottom of my feet to the top of my head.

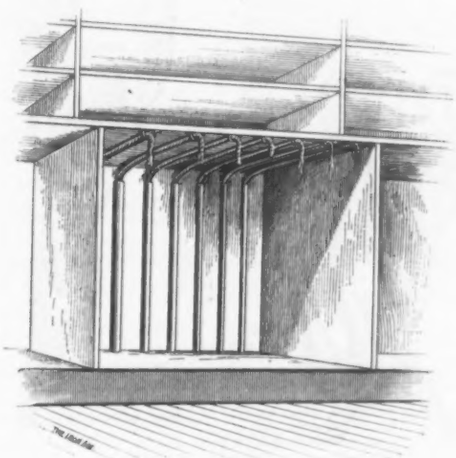
Our State is as yet in its infancy. The possibilities for its future are great. Let us not lose a single chance to add our mite toward the upbuilding of our country, and if we are called upon to render an account of our stewardship before any real benefit has made itself apparent to us, we have the satisfaction of leaving a heritage to our children which is far nobler and greater than a few paltry dollars that often take wings and fly away, leaving nothing but a bitter recollection of what has been. The State of California has made wonderful progress in its cities, its educational, horticultural and agricultural pursuits. Let us add our help to keep the good work going by assisting those in the wholesale business in our State as they have helped and are helping us all the time.

I feel that I must bring this paper to a close, although, to my notion, there are many more and strong reasons to be advanced why the California wholesaler should be preferred. I fear that some of you may think that I am talking in their interest, but let me disabuse you minds, for I have no connection whatsoever with any wholesale house, have no personal interest in any of them, am not indebted to any, nor am I seeking any favor at their hands; but I am looking with the keenest interest to the welfare of our association, for I can see much good to be derived therefrom if we act in the spirit of fairness with our wholesaler. We must not deceive ourselves with the idea that we can carry water on both shoulders, or that we can blind the wholesaler by handing him a bouquet and nothing more substantial. It is our duty to draw a line and hew to that line with honesty.

Reciprocity in trade, when carried out only in the one sided spirit of our being willing to take all the benefits that we can receive and give but little in return, brings reciprocity down to a mere mockery and a delusion.

ARRANGEMENT FOR RETAILING ROPE.

THE arrangement for retailing Rope, shown in the accompanying cut, is in use in the Hardware establishment of Seymour I. Crane, at Montclair, N. J. Pieces of wrought iron pipe, of suitable size to accommodate Rope of different diameters, are secured in holes at the back of one of the bins under the shelving. The pipes extend through the flooring into the basement,



Arrangement for Retailing Rope.

where the stock of Rope is kept. Each size of Rope is started from the center of the coil, passed up through its pipe and through a semicircular piece of metal, which is screwed under the ledge, at the front. When making a sale the quantity of Rope required is drawn out and cut off. By this arrangement the ends of the Rope left hanging in view and within reach of the customer answer for samples, while the location of the pipes at the back of the bin permits surplus stock of other goods to be kept in the bin. Thus the Rope is kept in salable shape, while the whole presents a neat appearance.

The Acme Stake.

The Racine Pole & Spring Company, Racine, Wis., are offering the trade the wagon stake herewith illustrated. It is explained that the stake shown in Fig. 2 covers the ends of the bolsters, making a strong and

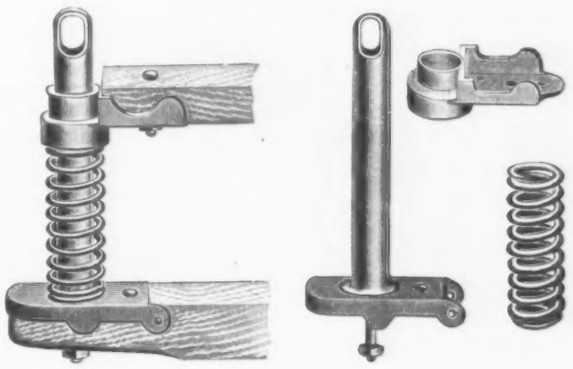


Fig. 1. Fig. 2.

The Acme Stake.

durable stake, as illustrated in Fig. 1. A bolster wagon can be changed to a light spring wagon by raising the box above the top of the stakes and removing or replacing the coils, as shown in the cuts.

The Stearns Adjustable Lawn Sprinkler No. 2.

E. C. Stearns & Co., Syracuse, N. Y., are offering the lawn sprinkler shown herewith. The quantity of the spray may be gauged by turning the adjustable cap on the screw. Sufficient tension to hold the cap firmly on the screw, it is shown, is furnished by a coiled spring, which at all times exerts an upward pressure against the bottom of the cap. The standard for holding the sprinkler upright in the ground is made of wire, pointed at the lower end, and cast into the body of the sprinkler, which is threaded to fit a standard ¾-inch hose connection, and is provided with an internal rubber packing. All visible parts of the sprinkler are finished in black enamel except the adjustable cap, which is of brightly polished non-rusting metal. It is explained that the lawn sprinkler is intended to meet the demand for an inexpensive sprinkler which will allow the water passing through it to cover a wide area of ground.

The Stearns Adjustable Lawn Sprinkler No. 2.

The Dime Screen Door Check

The accompanying cuts relate to a screen door check put on the market by the Caldwell Mfg. Company, Rochester, N. Y. Fig. 1 illustrates the closing door bringing

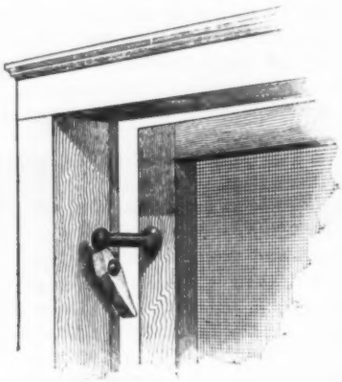


Fig. 1.—The Dime Screen Door Check.

the plunger on the door in contact with the top of the rubber bumper, throwing it up to position as in Fig. 2. The door rebounds from the concussion and the bumper drops by gravity to the position shown in Fig. 3, allowing

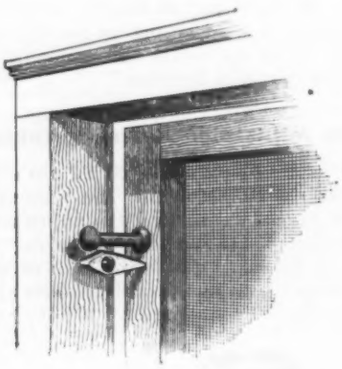


Fig. 2.—The Rubber Bumper Thrown Up.

the door to close. The bumper is of molded rubber, tapered to give the greatest amount of spring. It checks the door 3 inches from the closing point. The plunger is of japanned iron, and a round head blued screw for the

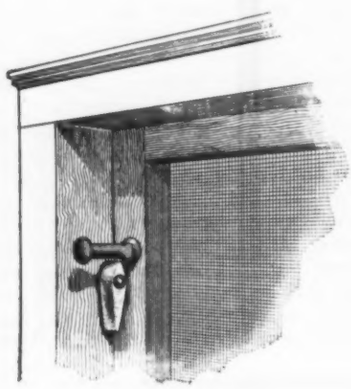


Fig. 3.—The Door Closed.

bumper is supplied. The outfit is put up with a card of directions exactly locating screw holes for both right and left hand doors. It is explained that the operation does not depend upon the momentum of the door, and that the device will always prevent the slamming of a screen door, whether the door is opened wide or partially. The checks are packed in attractive display boxes.

Anti-Friction Hooks.

I. E. Palmer, Middletown, Conn., is offering hooks, as shown in the accompanying cuts. The hooks illustrated in Fig. 1 are designed for hammocks and other uses. The supporting hook is broken away in the illustration to show the anti-friction bearing. The supporting hook has an elongated recess along its inner surface, while the pivot of the suspension loop is arranged to set within the hook, permitting it to accommodate itself to different angles. This arrangement, it is explained, permits the loop to swing latterly to a considerable degree upon its bearing, and as the recess is elongated the swinging mo-

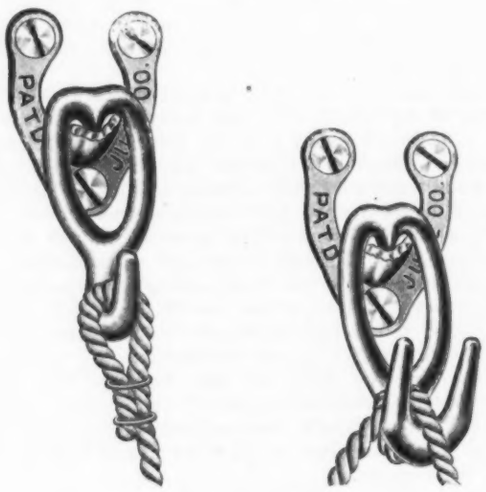


Fig. 1.—Anti-Friction Bearing Hooks.

tion is not interfered with by the different angular positions of the loop. This pivot action, it is stated, reduces friction to a minimum, the attachment working noiselessly and with no rattling or slipping of the parts. One each of the hooks shown in Figs. 1 and 2 is provided with two prongs at the lower part of the suspension eye, which allows a half hitch of the rope, which can be instantly readjusted. The swinging anti-friction hammock hook shown in Fig. 2, with the single rope prong, is referred to as having the same anti-friction advantages

Adjustable Hitch Hook. Hammock Hook.

Fig. 2.—Swinging Anti-Friction Hooks.

as noted heretofore, and is designed for use where the adjustable feature is not desired, such as using a rope with looped end. It is remarked that none of the Palmer hammocks require an anchor rope, as each hammock is fitted at either end with a special ring having double eyes, which allows the jamming half hitch to be taken in the hammock end of the rope and is extremely easy to adjust.

Current Hardware Prices.

REVISED FEBRUARY 11, 1902.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓@33⅓&10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent discount.

Cut Prices.—*In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 4, 1901), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, ₩ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent.....25&5%
Taplin's Perfection.....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Arm and Hammer, Wrought ₩ lb 8¼@8¾c
Buel Patent Trenton.....₩ lb 9¼@9¾c
Eagle Anvils.....₩ lb 7¼@7¾c
Hay-Budden, Wrought.....9@9¼c
Horseshoe brand, Wrought.....9@9¼c

Imported—

Peter Wright's.....9¼@9¾c

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....30%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co.:
Lots of 1 doz.....25%
Smaller Lots.....20%
Lots of 3 doz.....30%

Augers and Bits—

Com. Double Spur.....70@70&10%
Boring Machine Augers.....60&10&10@70&10%
Car Bits, 12-in. twist.....60@60&10%
Jennings' Pattern Auger Bits.....50&10&5@60%
Ford's Auger and Car Bits.....40&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ex. lip. R. Jennings' list....40%
No. 30, R. Jennings' List.....50%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits 15&10@15&10&5%
Mayhew's Countersink Bits.....45%
Pugu's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....50&10%
Snell's Car Bits, 12-in. twist.....60%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—

Standard List.....65@65&5%

Expansive Bits—

Clark's small, $15; large, $26.....50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $36; No. 2, $18.....50&10%
C. E. Jennings & Co., Steer's Pat.....33⅓%
Swan's.....40%

Gimlet Bits—

Common Double Cut..gro. $2.25@2.75
German Pattern.....gro. $4.50@5.00

Hollow Augers—

Bonney Pattern, per doz. $11.00@11.50
Ames.....25&10%
New Patent.....25&10%
Universal.....20%
Wood's Universal.....25%

Ship Augers and Bits—

Ford's.....40%
Snell's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15&10%
Watrous'.....40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled.....gro. $2.75@3.10
Unhandled, Shouldered..gro. 63@66c
Unhandled, Patent.....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. $1@1.1c
Unhandled, Shouldered..gro. 65@70c
Scratch Awls:
Handled, Common..gro. $3.50@4.00
Handled, Socket..gro. $11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality, best brands $5.50@6.75
First Quality, other brands $5.25@5.50
Jobbers' Special Brands:
Good Quality.....$4.50@4.75
Best Quality.....$5.00@5.25
Cheap, Handled Axes.....$5.50@5.75
Beveled, add 25c doz.

Axle Grease—See *Grease, Axle.*

Axles—

Iron or Steel.

Concord, Loose Collar.... 4¼@5c
Concord, Solid Collar....4¾@5¼c
No. 1 Common.....3¼@3¾c
No. 1½ Com. New Style..3¼@4 c
No. 2, Solid Collar.....4¼@4½c
Nos. 11 to 14.....70@70&10%
Nos. 15 to 18.....75@75&10%
Nos. 19 to 22.....75@75&10%

5% cash 10 days.

Boxes, Axle—

Common and Concord, not turned.. lb. 4¼@4½c
Common and Concord, turned.... lb. 4¾@5c
Half Patent.....lb. 8@9c

Balances—

Caldwell new list.....50%
Pollman's.....60%

Sash—

Spring—

Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%
Perpetual.....50%

Barb Wire—See *Wire, Barb.*

Bars—

Crow—

Steel Crowbars, 10 to 50 lb., per lb.. 2¾@3c

Beams, Scale—

Scale Beams, List Jan. 12, '98.40&10%
Chatillon's No. 1.....30%
Chatillon's No. 2.....40%

Beaters—

Egg—

Standard Co.: ₩ gro.
No. 0 Rapid.....$4.50
No. 10 Dover Family Size.....$6.5
No. 15 Dover Hotel Size.....$12.00
Rival.....$9.00
Taplin Mfg. Co.: ₩ gro.
No. 60 Improved Dover.....$6.50
No. 75 Improved Dover.....$7.50
No. 75-2 Imp'd Dover, Tin'd.....$9.00
No. 100 Improved D ver.....$8.00
No. 102 Improved Dover, Tin'd..$9 50
No. 150 Improved Dover, Hotel..$15.00
No. 152 Imp'd Dover, Hotel, T'd..$17.00
Lyon's, Standard size.....₩ doz. $1.75
Wonder (S. S. & Co.).....₩ gro. $7.50

Bellows—

Blacksmith, Standard List.70@70&10%
C. E. Jennings & Co., Blacksmith..60&10%
C. E. Jennings & Co., Hand.....33⅓&5

Blacksmiths—

Inch..	*20*	*22*	*24*	*26*	*28*	*30*
Each..	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*	*6.15*

Net Prices.

Extra Length:
Each..$4.00 4.55 5.10 5.60 6.40 7.50

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*
Doz...	*$6.75*	*7.25*	*8.50*	*9.50*	*12.00*	*14.50*

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.7*	*6.75*

Bells—

Cow—

Ordinary goods.....75&5@75&10%
High grade.....70@70&10%
Jersey.....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Barton Gong.....55%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's.....40&40&10%
Yankee Gong.....55%

Hand—

Hand Bells, Polished.....60&5@65&5%
White Metal.....55@55&10%
Nickel Plated.....50@50&10%
Swiss.....60@60&7½%
Silver Chime.....35&5@35&5&10%

Miscellaneous—

Farm Bells.....lb. 2@3½c
Steel Alloy Church and School.....50&10&5@60%
National Bell Foundry Co.: Superior Cast Steel Church and School Bells.....50&10&5@60%
Wilmot & Hobbs Mfg. Co., Gongs.....70%

Belting—Rubber—

Agricultural (Low Grade).75&10@80%
Common Standard.....75@75&10%
Standard.....70@70&10%
Extra.....60&10&5%
High Grade.....50&10@50&10&5%
Boston Belting Co.:
Seamless Stitched, Imperial.....45&5%
Boston.....50&5%
Niagara.....50&5%

Leather—

Extra Heavy, Short Lap..50&10@60%
Regular Short Lap.....60@60&5%
Standard.....60&10@65&10%
Light Standard.....65@70%
Leather Lacing.....60&10%

Cotton—

Rossendale-Reddaway B. & H. Co.:
Sphinx Brand.....60&10%
Durable Brand.....70%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....30%
Stoddard's Lightning Tire Upsetters.....40@50%

Bicycle Goods—

John S. Leng's Son's 1899 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—

Tackle—

Common Wooden.....70&10@75%
Cleveland's Steel.....60&10@70%
Ford's Star Brand Self Lubricating.....60&10%
Hollow Steel, Ford's Pat. Star Brand.....50&10%
Lane's Patent Automatic Lock and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards Stove—

Zinc, Crystal, &c... 40&10@40&10&5%

Bolts—

Carriage, Machine &c.—

Common, list Jan. 30, '95...60&10@..%
Norway Iron, $5.00, list Oct. 7, '85.. 30@30&5%
Philа. Eagle, $3.00 list May 24, '99.... 80@80&10%
Bolt Ends, list Jan. 30, '95...70&5@..%
Machine, list Oct. 1, '99.....70@..%
Machine with C & T. Nuts..... 65&7½@..%

NOTE.—*Jobbers are in many cases underselling the manufacturers.*

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.35*	*.50*	*.59*	*.67*	*.85*

Cast Iron Spring Foot:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.35*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.75*	*1.05*	*1.30*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.57*	*.80*	*1.00*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz....	*$0.44*	*.50*	*.61*	*.70*	*1.25*

Wrought Barrel .....70&10@75&5%
Wrought " Bronzed.40&5@60&10%
Wrought Flush, B. K..50&10@60&10%
Wrought Shutter...40&10&10@60&5%
Wrought Square Neck.....50@50&10%
Wrought Sunk.....50@50&10%
Ives' Patent Door.....60%

Stove and Plow—

Plow .....60&5@..%
Stove.....77½%

Tire—

Common.....77½%
Norway Iron.....80@80&5%
American Screw Company:
Norway Philа., list Oct. 16, '94....82½%
Eagle Philа., list Oct. 16, '94.....85%
Bay State, list Dec. 28, '99.....77½%
Franklin Moore Co.:
Norway Philа., list Oct. 16, '94..82½%
Eagle Philа., list Oct. 16, '94.....85%
Eclipse, list Dec. 28, '99.....77½%
Port Chester Bolt & Nut Company
Empire, list Dec. 28, '99.....77½%
Keystone Philа. list Oct. '94.....85%
Norway Philа., list Oct. '94.....82½%
Upson Nut Co.:
Tire Bolts.....77½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1⅝*	*1¾*	*2*
Per doz..	*$4.50*	*5.00*	*5.75*	*7.25*

Inch.....	*2¼*	*2½*
Per Doz.....	*$8.65*	*11.50*

Enterprise Mfg. Co., No. 1, $1.35; No. 2, $1.65; No. 3, $2.50 each.....25%

Boring Machines—See *Machines, Boring.*

Boxes, Mitre—

C. E. Jennings & Co.....40%
Seavey's, per doz., $30.....40%

Braces—

NOTE.—*Most Braces are sold at net prices.*

Common Ball, American..$1.15@1.25
Barber's.....50&10&10@50&10%
Fray's Genuine Spofford s.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....60%
C. E. Jennings & Co.....50&10%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Patent..50%
P., S. & W. Co Peck's Patent.....60&10@65&5%

Brackets—

Wrought Steel.....75&5@75&10%
Bradley's Wire Shelf:
Full cases.....80%
Broken cases.....75&10%
Griffin's Pressed Steel.....75%
Griffin's Folding Brackets.....70&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Wire Goods Co.....75%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—

Boss.....₩ gro. $48.00
Hoosier.....₩ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts—

Brass—

Wrought list Sept., '90.....40@40&5%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad.....50@50&10%
Fast Joint, Narrow.....50@50&10%
Loose Joint.....70&5@70&10%
Loose Pin.....70&5@70&10%
Mayer's Hinges.....70&5@70&10%
Parliament Butts.....70&5@70&10%

Wrought Steel—

Table and Back Flaps.....60%
Narrow and Broad.....60%
Inside Blind.....60&10%
Loose Pin.....60@10%
Loose Pin, Ball and Steeple Tip.....75%
Japanned, Ball Tip Butts..60%
Bronzed Wrt. Nar. and Inside Blind Butts.....45&20@45&25%

Extra 5%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong.....per lb..3½@4c
Sharp, 1 prong.....per lb... 4@4½c
Perkins' Blunt Toe.....₩ lb 3½c
Perkins' Sharp Toe.....₩ lb 4 c

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 75	2.10	2.25	each.
Iowa Pattern...	....	2.40	2.60	each.
Buffalo Pattern.	....	2.30	2.50	each.
	20	30	40	qts.
New York Pat'rn	2.00	2.25	2.40	each.
Baltimore Pat'rn	2.50	2.85	3.10	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$3.00	4.00	10.00 gro

Caps—Percussion—

Eley's E. B.	*60c*
G. D	*per M 52@54c*
F. I.	*per M 45@..c*
G. E.	*per M 47@50c*
Musket	*per M 65@..c*

Primers—

Berdan Primers, $1.00 per M.....5%
B. L Caps (Sturtevant Shells) *$1.00 per M.....5%*
All other primers per M. $1.32@$1.37

Carpet Stretchers—See *Stretchers, Carpet.*

Cartridges—
Blank Cartridges:
38 C. F., $5.50 ..... 10c&5%
38 C. F., $7.00 ..... 10c&5%
22 cal. Rim, $1.50 ..... 10c&5%
22 cal. Rim, $2.75 ..... 10c&5%
B. B. Caps, Con. Ball Swgt $1.90
B. B. Caps, Round Ball $1.40
Central Fire 25%
Target and Sporting Rifle ..... 15c&5%
Primed Shells and Bullets ..... 15c&10%
Rim Fire Sporting 50%
Rim Fire, Military ..... 15c&5%

Casters—
Bed ..... 70c&10@70c&10c&5%
Plate ..... 75c&10@75c&10c&5%
Philadelphia ..... 75c&10@75c&10c&5%
Boss ..... 70c&10%
Boss Anti-Friction ..... 70c&10%
Martin's Patent (Phoenix) 45%
Payson's Anti-Friction ..... 70c&10&10%
Standard Ball Bearing 45%
Tucker's Patent, low list 80%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—
American Coil. Cask lots:

-16	¼	5-16	⅜	7-16	½	9-16
8.20	6.10	5.10	4.35	4.15	4.05	4.10
⅝	¾	⅞	1 to 1¼ inch.			
3.95	4.00	4.00	4.30 per 100 lb.			

Less than Cask lots add 25c.
German Coil ..... 60&10c&10%

Halters and Ties—
Halter Chains ..... 60c&10@60c&10c&10%
German Halter Chain, list July 24, '97 ..... 60c&10@60c&10c&5%
Cow Ties 60%

Trace, Wagon, &c.—
Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring .. $30.00
6½—6-2, Straight, with ring .. $31.00
6½—8-2, Straight, with ring .. $35.00
6½—10-2, Straight, with ring .. $38.00
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains .. 50c&10@50c&10c&5%

Miscellaneous—
Jack Chain, list July 10, '98:
Iron ..... 60c&10@60c&10c&10%
Brass ..... 60c&10@60c&10c&10%
Safety Chain ..... 70c&5@70c&10%
Gal. Pump Chain ..... lb. 4@4½c
Covert Mfg. Co.:
Breast ..... 35&2%
Halter ..... 35&2%
Heel ..... 35&2%
Rein ..... 35&2%
Stallion ..... 35&2%
Covert Sad. Works:
Breast 70%
Halter 70%
Hold Back 70%
Rein 70%
Oneida Community:
Am. Coil and Halters ..... 40@45&5%
Am. Cow Ties ..... 45@50%
Eureka Coil and Halter ..... 45@50&5%
Niagara Coil and Halters ..... 45&50&5%
Niagara Cow Ties ..... 45&5@50&10&5%
Wire Dog Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain ..... 60&10%
Universal Dbl-Jointed Chain 50%

Chalk—(From Jobbers.)
Carpenters' Blue ..... gro. 42@45c
Carpenters', Red ..... gro. 37@40c
Carpenters', White ..... gro. 33@35c
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—
Bardsley's ..... 40&10%
Columbia ..... 50&10%
Eclipse ..... 60@60&10%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools 55%
Youths' Chests, with Tools 40%
Gentlemens' Chests, with Tools 30%
Farmers', Carpenters', etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 30%
C. E. Jennings & Co.'s Machinists' Tool Chests 20%

Chisels—
Socket Framing and Firmer
Standard List ..... 70c&5@70c&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Socket Firmer No. 10 ..... 60c&10%
C. E. Jennings & Co. Socket Framing No. 15 ..... 60c&10%
Swan's ..... 70c&5%
L. & I. J. White ..... 90c@30c&5%

Tanged—
Tanged Firmers ..... 40c&5@40c&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Nos. 191, 181 ..... 25%
L. & I. J. White, Tanged ..... 25c&5%

Cold—
Cold Chisels, good quality .. lb. 13@15c
Cold Chisels, fair quality .. lb. 11@12c
Cold Chisels, ordinary ..... lb. 8@9c

Chucks—
Beach Pat., each $8.00 ..... 30%
Massey's Planer and Milling ..... 15@20%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks, Patent and Standard 30%
Drill Chucks, New Model 2½%
Independent Lathe Chucks 40%
Improved Planer Chucks 25%
Universal Lathe Chucks 40%
Face Plate Jaws 40%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination 40%
Clear Drill 30%
Geared Scroll 30%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—
Adjustable, Hammers' ..... 30@20&5%
Cabinet, Sargent's ..... 50&10%
Carriage Makers', P., S. & W. Co. ..... 40&10%
Carriage Makers' Sargent's ..... 50&10%
Beaty, Parallel ..... 33⅓&10%
Lineman's, Quick Drop Forge & Tool Co 40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners Sidewalk—
Star Socket, All Steel ..... ₱ doz. $4.00 net
Star Shank, All Steel ..... ₱ doz. $3.75 net
W. & C. Shank, All Steel, 7½ in. ₱ doz., $3.05; 8 in., $3.10; 8½ in., $3.25.

Cleavers, Butchers'—
Foster Bros 30%
New Haven Edge Tool Co.'s 40%
Fayette R. Plumb ..... 33⅓@33⅓&10%
P., S. & W ..... 50@50&5%
L. & I. J. White 35%

Clippers—
Chicago Flexible Shaft Company
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $3.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00

Clips Axle—
Eagle and Superior ¼ and 5-16 inch ..... 70c&10%
Norway, ½ and 5-16 inch .. 70@70c&10%

Cloth and Netting, Wire—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Compression and Plain Bibbs ..... 65c&5@65c&10%
Globe, Kerosene, Racking, &c., Cocks ..... 65c&10@70%

Coffee Mills—See *Mills, Coffee.*

Collars Dog—
Brass, Pope & Stevens' list 40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather Pope & Stevens' list 40%

Compasses Dividers, &c.
Ordinary Goods ..... 75@75c&5%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
J. Stevens A. & T. Co ..... 35&10%

Compressors Corn Shock—
J. B. Hughes' ₱ doz $2.50

Conductor Pipe, Galva.—
L. C. L. to Dealers:

Territory.	*Not nested.*	*Nested.*
Eastern	70c&2½c&10%	70c&5&10%
Central	65c&10c&10%	70c&10%
Southern	65c&10%	65c&2½c&10%
S. Western	60c&12½c&10%	60c&15c&10%

Terms, 2% for cash.
Jobbers receive extra 12½c&2½ on carloads loose, and extra 12½ on carloads crated.
See also *Eave Troughs.*

Coolers, Water—

Gal, each.	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	2.20
Gal,	3	4	6	8
Iceland, ea.	$1.80	$2.10	$2.40	$3.00
Gal,	2	3	4	6	8
Galv. Lined Ea.	$1.35	$2.00	$2.25	$2.90	$3.90 25%

Ga.v. Lined side handles

Gal.	2	3	4	6	8
Each.	$1.95	$2.15	$2.40	$3.30	$4.15..25%

Coopers' Tools—
See *Tools, Coopers'.*

Cord—Sash—
Braided, Drab ..... lb. 25c
Braided, White, Common .. lb. 17@18c
Cable Laid Italian .. lb. A, 18c; B, 16c
Common India ..... lb ₱ @9½c
Cotton Sash Cord, Twisted .... 12@16c
Patent Russia ..... lb. 12½@13c
Cable Laid Russia ..... lb. 13½@14c
India Hemp, Braided ..... lb 14@15c
India Hemp, Twisted ..... lb. 10@12c
Patent India, Twisted ..... lb. 10@12c
Pearl Braided, cotton ..... ₱ b 17½¢
Massachusetts, White ..... ₱ b 22½¢
Massachusetts, D ab ..... ₱ b 26½¢
Eddystone Braided Cotton ..... ₱ b 19¢
Harmony Cable Laid Italian ..... ₱ b 18¢
Ossawan Mills:
Crown, Solid Braided White ... ₱ b 22¢
Braided, Giant, White ..... ₱ b 20¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 18¢
Phoenix, White ..... 19¢
Samson, Nos. 7 to 12:
Braided, Drab Cotton ..... ₱ b 32½¢
Braided, Italian Hemp ..... ₱ b 32½¢
Braided, Linen ..... ₱ b 40¢
Braided, White Cotton, Spot. ₱ b 28½¢
No. 6 extra, 1¢ extra.
Silver Lake:
A quality, Drab, 40¢ 15%
A quality, White, 35¢ 15%
B quality, Drab, 35¢ 15%
B quality, White, 30¢ 15%
Italian Hemp, 40¢ 15%
Linen, 57½¢ 15%

Wire, Picture—
Braided or Twisted ..... 85c&10@..%
Note.—There is a good deal of confusion in lists, some using old list and others the new list.

Corn Knives and Cutters—See *Knives, Corn.*

Corn Planters—
See *Planters, Corn—*

Crackers, Nut—
Little Giant, ... ₱ gr. $24.00

Cradles—
Grain 50%

Crayons—
White Round Crayons, gross .. 5½@6c
Cases, 100 gro., $4.50, at factory.
D. M. Steward Mfg. Co.
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square ..... gr. $1.50
Rolling Mill Crayons ..... gr. $2.50
Railroad Crayons (composition) gr. $2.00
Case lots 20%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—
Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden ..... ₱ doz. $10.00

Cutlery, Table—
International Silver Company:
No. 12 Medium Knives, 1847. ₱ doz $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ₱ doz $3.00
Wm. Rogers & Son ..... ₱ doz. $2.50
Simeon L. & Geo H. Rogers Company:
12 dwt Medium Knives ..... ₱ doz. $3.00
No. 77 Medium Knives ..... ₱ doz. $2.50

Cutters—Glass—
H. H. Mayhew Co 40%
Smith & Hemenway Co 50%

Meat—
Hale's..Nos. 11 & 111 12 & 112 13 & 113
Per doz .. $9.50 12.50 16.00
American 30%

Nos	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Connecticut 50%

No	20	40	60	8	10	12
Each	$1.75	2.00	2.25	3.00	3.00	4.00

Enterprise ..... 25@25&7½%

Nos	8	10	12	32	32
Each	$3	$3	$2.50	$4	$6

Dixon's, ₱ doz ..... 30&10@40%

Nos	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Home No. 1, ₱ doz. $22.75 ..... 50&10%
Little Giant, ₱ doz ..... 33⅓&5@40%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$75.00	$68.00

Sterling ..... 33⅓&5%

Nos	1	2
Each	$5.00	$2.50

New Triumph No. 605, ₱ doz. $24.00 ..... 30&10@10%
Woodruff's, ₱ doz ..... 30&10@40%

Nos	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9 .. 55%
Kraut Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, ₱ gr. ... $18@$20
Slaw Cutters, 2 Knife, ₱ gr. ... $22@$36

Tobacco—
All Iron, Cheap ..... doz. $4.25@$4.50
Enterprise ..... 35&5%
National, ₱ doz. $21.00 ..... 40%
Sargent's, ₱ doz., No. 2 ..... 45&10%
Sargent's No 12 and 21 ..... 5%&10%

Washer—
Appleton's, ₱ doz. $16.00 .... 50&10&10%
Bonney's 40%

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger ... per doz. $9.00
Iwan's Improved Post Hole Auger 40%
Iwan's Perfection Post Hole Digger ... ₱ doz. $9.00
Kohler's Universal ..... ₱ doz. $14.00
Kohler's Little Giant ..... ₱ doz. $14.00
Kohler's Hercules ..... ₱ doz. $12.00
Kohler's Invincible ..... ₱ doz. $10 00
Kohler's Rival ..... ₱ doz. $9.00
Kohler's Pioneer ..... ₱ doz. $9.00
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 60%
Samson, ₱ doz. $34.00 ..... 35%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—
See *Checks, Door.*

Door Springs—
See *Springs, Door.*

Doors, Screen—
Porter's Plain, No. 6 ..... ₱ doz. $6 50
Porter's Ornamental, No. 70. ₱ doz. $10.00

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $13; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Drills and Drill Stocks—
Common Blacksmiths' Drill .. each $1.50@$1.75
Blacksmiths' Self-feeding ..... *each $3.75@4.00*
Breast, Millers Falls, each $3.00 .. 10&10%
Breast, P., S. & W ..... 40@40&5%
Goodell Automatic Drills .. 40&5@40&10%
Jonas & Co's Automatic Drills Nos. 2 and 3 ..... 16%&5
Johnson's Drill Points ..... 25&10%
Ratchet, Curtis & Curt's 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 20@25%
Ratchet, Whitney's, P. S. & W 50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓&5%

Twist Drills—
Standard List ..... 60c&5@65c&10%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—
See *Pans, Dripping.*

Drivers, Screw—
Screw Driver Bits ... per doz. 45@70c
Balsey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9.. 40%
Buck Bros 30%
Buck Bros' Screw Driver Bits 30%
Champion ..... 40&10%
Douglass Mfg. Co ..... 20@20&10%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay's Double Action Ratchet 35%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 40&10%
New England Specialty Co ..... 50&10%
Sargent & Co.'s:
Nos. 1, 50, 55 and 60 ..... 50&10&10%
Nos. 20 and 40 ..... 60½&10%
Smith & Hemenway Co ..... 40&5%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles .. 40&10&10&10%
No. 86 ..... 70&10&10&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 40 ..... 40&10%
Nos. 25, 35 and 45 ..... 20&10&10%

Eave Trough Galvanized

Territory.	*L. C. L.*	
Eastern	75c&c10@10%	Carloads extra 12½%
Central	75c&7½c&10%	
Southern	70c&7½c&10%	
S. Western	70c&10c&10%	

Terms, 2% for cash.
See also *Conductor Pipe and Elbows.*

Egg Beaters—See *Beaters, Egg*
Egg Openers—
See *Openers, Egg.*

Elbows and Shoes—
Factory shipments 60%
Perfect Elbows (S. S. & Co.) 40%

Emery, Turkish—

	4 to 6	8 to 150	Flour
Kegs ..... lb.	5c	5½c	8c
½ *Kegs* ..... lb.	5½c	5¾c	8½c
Kegs ..... lb	5c	6c	
10-lb cans, 10 in case	6½c	7c	8c
10-lb. cans, less than 10	10c	10c	8c

NOTE.—*In lots 1 to 3 tons a discount of 10% is given.*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—
See *Pins, Escutcheon.*

Extractors, Lemon Juice—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's ..... 50&10%

Faucets—
Cork Lined ..... 70c&5@70c&10c&5%
Metallic Key, Leather Lined ..... 70@70c&10%
Red Cedar ..... 80@80c&10%
B. & L. H. Co.:
Lockport, Metal Plug, reduced list .. 60&5%
Star ..... 60@60&5%
Star, Metal Plug new list ..... 40@40&5%
West's Lock, Open and Shut Key .. 50&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key .. 50&10%
John Sommer's Duplex Metal Key .. 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined .. 50%
John Sommer's Reliable Cork Lined 50&10%
John Sommer's Chicago Cork Lined .. 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's No Brand, Cedar 50%
John Sommer's Perfection Cedar 40%
McKenna, Brass:
Burglar Proof, N. P 35%
Improved, ¾ and ⅞ inch 35%
Self Measuring:
Enterprise, ₱ doz. $30.00 ..... 40&10%
Lane's, ₱ doz. $36.00 ..... 40&10%
National Measuring, ₱ doz. $36.00 .. 40%

Felloe Plates—
See *Plates, Felloe.*

Files—Domestic—
List revised Nov. 1, 1899.
Best Brands ..... 70c&5@70c&10%
Standard Brands ..... 75@75c&10c&5%
Second Quality ..... 75c&10c&10@30c&5%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97 ..... 25%

Fixtures, Grindstone—
Net Prices:

Inch	15	17	19	21	24
Per doz	$2.60	2.75	3.00	3.50	4.40

P., S. & W. Co ..... 50@50&5%
Reading Hardware Co 40%
Sargent's ..... 60&10&10%
Stowell's Giant Grindstone Hanger, ₱ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy ..... 50&10&10%
Stowell's Grindstone Fixtures Light ... 60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
Sept. 1, 1900, list.
Grain or Barley Forks, 16 to 20 inches ..... 70c&5% } Extra 10c&5%
Hay, 2 tine 65%
Hay, 3 tine 66⅔%
Hay, 4 tine, Header and Barley Forks, 13 to 16 inches 66⅔%
Manure, 4 tine 70%
Manure, 5 and 6 tine 70%
Spading ..... 70c&5%
Iowa Dig-Ezy Potato 65%
Victor, Hay 66⅔%
Victor, Manure 70%
Victor, Header ..... 60&30%
Champion, Hay 66⅔%
Champion, Manure 70%
Columbia, Hay ..... 66⅔&5%
Columbia, Manure 70%
Columbia, Spading 70%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
W. & C. Potato Digger 65%
Acme Hay ..... 60&10&7½%
Acme Manure, 4 tine ..... 60&20&10%
Acme Manure, 6 tine ..... 60⅔&10&5%
Dakota Header ..... 65&15&5%
Jackson Steel Barley ..... 65&15&5%
Kansas Header ..... 65&5
W. & C. Favorite Wood Parley 4 tine, ₱ doz., $5.00; 6 tine, $6.00
Plated.—See *Spoons.*

Frames—Saw—
Red, Polished and Varnished .. *doz. $1.15@$1.80*
White ..... *doz. 75@80c*

Screens and Frames—
See *Screens.*

Freezers, Ice Cream—

Qts	2	3	4	6	8	10
Best	$1.55	1.65	1.95	2.40	3.00	3.90
Good	$1.25	1.40	1.70	2.15	2.75	3.75
Fair	$1.00	1.10	1.30	1.75	2.30	2.90

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—Per 1000 Feet.
Hemp Fuse $2.60
Cotton Fuse 3.90
Single Taped Fuse 3.25
Double Taped Fuse 4.30
Triple Taped Fuse 5.00
Extra 10c&5%

Gates, Molasses and Oil—
Robbins' ..... 30@30&10%

Gauges—
Marking, Mortise, &c. ..... 55&10@55&10&10%
Merritt's Comb. Roller gauge ..... ₩ doz $6.75@7.25
Stanley R. & L. Co.'s Butt & Rabbet Gage ..... 20@20&10&10%
Starrett, Brown & Sharpe's 25%
Starrett, Morse's 25%
Starrett, P., S. & W. Co ..... 30@30&10%

Gimlets—Single Cut—
Auger, Metal, Assorted, gro. $1.50@1.60
Auger, Metal, Assorted gro. $2.80@3.25
Auger, Wood Handled, Assorted, gro. $1.75@2.00
Auger, Wood Handled, Assorted gro. $3.25@3.50

Glass, American Window
Jobbers' List, Jan. 21, 1901
Every store ..... 90&10%
F. O. B. factory, carload lots:
Single strength ..... 80&10&7½%
Double strength ..... 90&10&10%

Glue—Liquid, Fish—
List A, Bottles or Cans, with Brush. ..... 37½@50%
List B, Cans (½ pts., pts., qts.) ..... 33⅓@43%
List C, Cans (½ gal., gal.) ..... 25@45%
International Glue Co. (Martin's) ..... 40&10@5%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Common Grade ..... *gro. $5.00@6.00*
Dixon's Everlasting ..... 10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs., ₩ doz. 1 lb $1.20; 2 lb $2.00
Snow Flake, 1 qt. cans, per doz. $2.00; 2 qt., $3.20; 1 gal. cans per doz. $6.00; 3 gal. $16.00; 5 gal. $24.00 } 10%

Grindstones—
Bicycle Emery Grinder $6.50
Bicycle Grindstones, each ..... $2.50@3.00
Pike Mfg. Co:
Improved Family Grindstones, per inch, per doz. ..... $2.00 } 33⅓%
Pike Mowe Knife and Tool Grinder, each $6.00
Velox Ball Bearing, mounted, Angle Iron Frames ..... each, $3.25

Guards, Snow—
Cleveland Wire Spring Co.:
Galv. Steel ₩ 100 ..... $9.00
Copper ₩ 100 ..... $18.00

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
gro.
Peg Patent, Leather Top ..... *$4.90@5.25*
Peg Patent, Plain Top ..... *$3.50@3.75*
Sewing, Brass Ferrule ..... *$1.50@1.60*
Saddlers', Brass Ferrule ..... *$1.35@1.45*
Pea, Common ..... *$1.25@1.35*
Brad, Common ..... *$1.50@1.75*

Halters and Ties—
Covert Mfg. Co.:
Web ..... 45&2%
Jute Rope ..... 45&2%
Sisal Rope ..... 30&2%
Covert's Saddlery Works:
Web and Leather Halters 70%
Jute and Manila Rope Halters 70%
Sisal Rope Halters ..... 60&20%
Jute, Manila and Cotton Rope Ties .. 70%
Sisal Rope Ties ..... 60&20%

Hammers—
Handled Hammers—
Heller's Machinists' ..... 50@50&5%
Heller's Farriers ..... 50@50&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40@40&10&10%
Peck, Stow & Wilcox ..... 50&10%
Fayette R. Plumb:
Plumb, A. E. Nail ..... 33⅓&5@33⅓&10&5%
Engineers' and B. S. Hand ..... 50&10&7½@50&10&10&7½%
Machinists' Hammers ..... 50&10@50&10&10%
Riveting and Tinners' ..... 40&7½@40&10&7½%
Sargent's C. S. New List 45%

Heavy Hammers and Sledges—
3 lb. and under ... *lb. 45c* } 75&10&5
3 to 5 lb ... *lb. 36c* } @..%
Over 5 lb ... *lb. 30c* }
Wilkinson's Smiths' ..... *9½@10c lb.*

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Axe, Pick, &c ..... *60@60&10%*
Hoe Rake, Fork, &c ..... *60@60&10%*
Shovel, &c., Wood D Handle ..... *50@50&5%*
Cross-Cut Saw Handles—
Atkins' ..... 40&5%
Champion ..... 45@45&10%
Disston' 50%
Mechanics' Tool Handles—
Auger, assorted ..... *gro. $2.30@$2.50*
Brad Awl ..... *gro. $1.25@$1.50*
Chisel Handles:
Apple Tanged Firmer, gro. ass'd. *$2.25@$2.35; large, $2.50@$2.60.*
Hickory Tanged Firmer, gro. ass'd *$1.75@$2.20; large, $2.50@$2.70.*
Apple Socket Firmer, gro ass'd, *$1.70@$1.85; large, $2.00@$2.25*
Hickory Socket Firmer, gro ass'd, *$1.60 @ $1.75; large, $1.75 @ $2.00*
Hickory Socket Framing, gro. ass'd. *$2.50@$2.75; large, $2.65@$2.85*
File, assorted ..... *gro. $1.60@$1.15*
Hammer, Hatchet, Axe, &c *60%*
Hand Saw, Varnished, doz. 70@75c
Not Varnished ..... *55@60c*
Plane Handles:
Jack, doz. 25c; Jack Bolted ..... *55@60c*
Fore, doz. 35@38c; Fore, Bolted ..... *70@75c*
Nicholson Simplicity File Handle, ₩ gro. ..... $0.85@$1.50

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	*3*	*4*	*5*	*6*	*8*
Doz	*$0.85*	*1.20*	*1.50*	*1.90*	*2.30*

Barn Door, New England Pattern, Check Back, Regular:

Inch	*3*	*4*	*5*	*6*
Doz	*$1.30*	*1.75*	*2.50*	*3.00*

Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door 50%
Elevator 40%
Railroad 55%
Columbian Hdw. Co.:
American Trackless ..... 33⅓&10%
Cronk Hanger Co.:
Loose Axle 60%
Roller Bearing ..... 60&10%
Lane Bros.:
Parlor, Ball Bearing $4.00
Parlor, Standard $3.25
Parlor, New Model $3.75
Parlor New Champion $2.25
Barn Door, Standard ..... 60&10%
Covered ..... 50&10&10&5%
Special ..... 60&10%
Lawrence Bros.:
Advance 60%
Cleveland 70%
Crown 60%
New York 60%
Peerless ..... 60&10%
Sterling 60%
McKinney Mfg. Co.:
No. 1, Special, $15 ..... 60&10%
No. 2, Standard, $18 ..... 60&10%
Myers' Stayton Hangers and Track. ..... 50&10% (net)
Stowell Mfg. and Foundry Co.
Acme Parlor Ball Bearing 40%
Atlas 60%
Badger Barn Door 50%
Baggage Car Door 50%
Climax Anti-Friction 50%
Elevator 40%
Express 50%
Interstate 60%
Lundy Parlor Door 50%
Magic 50%
Matchless 60%
Nansen ..... 60&10%
Railroad 50%
Street Car Door 50%
Steel, Nos. 300, 400, 500 ..... 40&15%
Stowell Parlor Door 50%
Wild West, Nos. 300, 400, 500 ..... 5%
Zenith for Wood Track 50%
Taylor & Boggs Foundry Co. 50%
Kidder's ..... 50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing ..... 60&10%
C. J. Roller Bearing ..... 60&10%
Cycle Ball Bearing 50%
Dwarf Ball Bearing 40%
Ives, Wood Track ..... 60&10%
L.T. Roller Bearing ..... 60&10&5%
New Era Roller Bearing ..... 30&10%
O. K. Roller Bearing ..... 60&10&5%
Prindle, Wood Track 60%
Richards' Wood Track 60%
Richards' Steel Track ..... 50&10%
Spencer Roller Bearing ..... 60&10%
Tandem Nos. 1 and 2 ..... 60%
Underwriters' Roller Bearing 40%
Velvet 50%
Wilcox Auditorium Ball Bearing 20%
Wilcox Barn Trolley No. 123 ..... 40%
Wilcox Elevator Door Hangers, Nos 112 and 122½ 50%
Wilcox Elevator Door Hangers, No. 132 ..... 40%
Wilcox Fire Trolley, Roller Bearing 30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century ..... 30&10&10%
Wilcox O. K. Steel Track 50%
Wilcox O. K. Trolley 50%
Wilcox Trolley Ball Bearing 40%
Wilcox Wideman Narrow Gauge Ball Bearing 40%

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp ₩ doz 50%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands ..... *50@50&10%*
Cheaper Brands ..... *60@60&10%*
Note.—Net prices often made.

Hay and Straw Knives—See *Knives.*

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind:
(Victor; National; 1888 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No	*1*	*3*	*5*
Doz pair	*$0.75*	*1.45*	*2.90*

Mortise Shutter:
(L. & P., O. S., Dixie, &c.)

No	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.60*	*.55*	*.52*	*.45*

Mortise Reversible Shutter, (Buffalo, &c.)

No	*1*	*1½*	*2*
Doz. pair	*$0.65*	*.60*	*.55*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%
Parker ..... 70@75%
Reading's Gravity ..... 75&10%
Sargent's, Nos. 1, 3, 5, 11 & 13 ..... 70&10@70&20%
Stanley's Steel Gravity Blind Hinges, ₩ doz. sets, without screws, $1.30; with screws, $1.15.
Wrightsville H'dware Co.:
O. S., Lull & Porter ..... 50&2½%
Acme, Lull & Porter ..... 75&10%
Queen City Reversible ..... 70&10%
Stenger's Positive Locking, Nos. 1 & 3 ..... 70&10&5%
Shepard's Noiseless, Nos. 60, 65, 55 ..... 70&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5 ..... 75&7½%
1898, Old Pat'n. Nos. 1, 3 & 5. ..... 75&7½%
Tip Pat'n, Nos. 1, 3 & 5 ..... 75&7½%
Buffalo Gravity Locking, Nos 1, 3 & 5 ..... 75&7½%
Shepard's Double Locking, Nos. 20 & 25 ..... 70&10%
Champion Gravity Locking, No. 75 ..... 75&7½%
Steamboat Gravity Locking, No. 10, ... 75&7½%
Pioneer, Nos. 060, 45 & 5½ ..... 75&7½%
Empire, Nos. 101 & 103 ..... 70&7½%
W. H. Co.'s Mortise Gravity Locking, No. 2 ..... 60&10%

Extra 5@10% often given.

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No	*1*	*2*	*3*
Hinges with Latches	*$1.80*	*1.90*	*2.05*
Hinges only	*$1.20*	*1.40*	*2.00*
Latches only	*.60*	*.60*	*.65*

New England:
With Latch ..... *doz* ..... *@$1.55*
Without Latch ..... *doz.* ..... *@$1.25*
Reversible Self-Closing:
With Latch ..... *doz.* ..... *@$1.80*
Without Latch ..... *doz.* ..... *@$1.45*
Western:
With Latch ..... *doz.* *$1.60@1.75*
Without Latch ..... *doz.* *$0.95@1.20*
Wrightsville H'dware Co.:
Shepard's or Clark's, doz. sets,

No.	1	2	3
Hinges with Latches	$1.80	2.00	2.75
Hinges only	1.20	1.50	2.10
Latches only	.65	.65	.70

Spring Hinges—
Holdback, Cast Iron ..... *gro $8.00@9.00*
Non-Holdback, Cast Iron ..... *gro $7.00@7.50*
J. Bardsley
Bardsley's Patent Checking 15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges 40%
Chicago Spring Butt Co.:
Chicago 25%
Floor Hinge 50%
Garden City Engine House 25%
Keene's Saloon Door 25%
Triple End 50%
Columbian Hdw. Co.:
Acme, Wrt. Steel 30%
Acme, Brass 20%
American 30%
Columbia, No. 14 ..... ₩ gr. $9.00
Columbia, No. 18 ..... ₩ gr. $25.00
Columbia, Adjustable 30%
Gem, new list 25%
Clover Leaf ..... ₩ gr. $12.50
Oxford new list 30%
Hoffman Hinge & Foundry Co.:
No. 70 & 80 Holdback Detachable $8.50
Lawson Mfg. Co.:
Machine 35%
Matchless Pivot 45%
Payson Mfg. Co.:
Oblique ..... 50&10%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₩ gr. $12.50
Ideal, No. 4 ..... ₩ gr. $9.00
New Idea No. 1 ..... ₩ gr. $9.00
New Idea, Double Acting 45%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar. 15, 1901:
Light Strap Hinges 70%
Heavy Strap Hinges ..... 75&10%
Light T Hinges 66⅔%
Heavy T Hinges ..... 60&5%
Extra Heavy T Hinges 75%
Hinge Hasps 55%
Cor. Heavy Strap ..... 75&10%
Cor. Ex. Heavy T 75%
Screw Hook and Strap: *6 to 12 in.* ..... *lb 3½c*; *12 to 20 in.* ..... *lb. 3 c*; *22 to 36 in.* ..... *lb. 2½c*
Screw Hook and Eye:
¾ to 1 inch ..... *lb 5 c*
⅞-inch ..... *lb 6 c*
½-inch ..... *lb. 7 c*

Extra 5 & 20 & 10%

Miscellaneous—
Hoffman's Steel Spring Butt Hinges ..... 40&10%
Hoffman's Offset Refrigerator Hinges ..... 40&10%

Hods, Coal—

	15	*16*	*17*	*18 inch.*
Galv. Open	*$2.70*	*3.00*	*3.30*	*3.60* ₩ doz.
Jap. Open	*$2.10*	*2.40*	*2.70*	*3.00* ₩ doz.
Galv. Funnel	*$3.30*	*3.60*	*3.90*	*4.20* ₩ doz.
Jap. Funnel	*$2.70*	*3.00*	*3.30*	*3.60* ₩ doz.

Hoes—Eye—
Scovil and Oval Pattern ..... *60&5@60&10&5%*
Grub, list Feb. 23, 1899 ..... *70@70&10%*
D. & H. Scovil 35%

Handled—
Sept. 1, 1900, List:
Field and Garden ..... *75&2%*
Ladies', Boys', Toy and Onion ..... *70&10&10%*
Street and Mortar ..... *75&7½&2%*
Cotton ..... *70&10&10&5&2%*
Planters' ..... *70&10%*
Weeding *75%*
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe ..... 75&3%
Ft. Madison Crescent Cultivator Hoe, per doz ..... 75&10&3%
Ft. Madison Mattock Hoes:
Regular Weight ..... ₩ doz. $4.50
Junior Size ..... ₩ doz. $4.00
Ft. Madison Sprouting Hoe, ₩ doz. $4.80
Ft. Madison Dixie Tobacco Hoe .. 75&20%
Kretsinger's Cut Easy, per doz .... 75&2%
Warren Hoe 60%
W. & C. Ivanhoe ..... 75&2%
B. B. Cultivator Hoe ..... 25&10&2%
Acme Weeding ..... 75&10&2%
W. & C. Lightning Shuffle Hoe, ₩ doz. $4.85

Hog Rings and Ringers—See *Rings and Ringers.*

Hoisting Apparatus—See *Machines, Hoisting.*

Hollow Ware—See *Ware, Hollow.*

Holders—Bit—
Angular, ₩ doz. $24.00 ..... 45&10%
Door—
Empire 50%

File and Tool—
C. E. Jennings & Co.'s Model Tool Holders ..... 33⅓&5%
Nicholson File Holders and File Handles ..... 33⅓&5%

Hooks—Cast Iron—
Bird Cage, Reading 60%
Bird Cage, Sargent's List ..... 50&10&60%
Ceiling, Sargent's List ..... 40&10%
Clothes Line, Hoffman's ..... 40&10%
Clothes Line, Reading List ..... 65&10@65&10&10%
Clothes Line, Sargent's List 50&10&10&5%
Coat and Hat, Sargent's List ..... 45&10%
Clothes Line, Stowell's 70%
Coat and Hat, Stowell's 70%
Coat and Hat, Reading ..... 70@75%
Coat and Hat, Wrightsville ..... 65&10%
Harness, Reading List ..... 70&10@75%

Wire—
Belt *80%*
Wire C. & H. Hooks ..... *60&10@60&10&5%*
Atlas, Coat and Hat:
Single Cases 45%
10 Case Lots ..... 45&10%
Czar Harness ..... 50&10&5%
Wire Coat and Hat:
Acme 60%
B. B 60%
V Brace, Chief and Czar 60%
Gem 60%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, 6 in., per doz. $1.50; 8 in., $1.75; 10 in., $2.00.
Cotton ..... *doz. $1.05@1.25*
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50

Grass ..... *Nos.*	*1*	*2*	*3*	*4*
Best	*$1.50*	*1.75*	*2.00*	
Common	*$1.30*	*1.50*	*1.50*	*1.60*

Potato and Manure 70%
Whiffletrees ..... *lb, 4½c*
Hooks and Eyes:
Brass ..... *60c&10c&10@70%*
Malleable Iron ..... *70c&5@70c&10%*
Covert Saddlery Works' Self Locking Gate and Door Hook 60%
Crown Picture ..... 50&10%
Bench Hooks—See *Bench Stops.*
Corn Hooks—See *Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—See *Shoes, Horse.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition ..... *ft. 4¼@4¾c*
3-ply Standard ..... *ft. 5 @6 c*
4-ply Standard ..... *ft. 8 @9 c*
3-ply extra ..... *ft. 9 @10 c*
4-ply extra ..... *ft. 11 @12 c*
Cotton Garden, ¾-in., coupled:
Low Grade ..... *ft. 6 @7 c*
Fair quality ..... *ft. 8 @9 c*

Irons—Sad—
From 4 to 10 ..... *lb 3@3¼c*
B. B. Sad Irons ..... *lb. 3¼@4c*
Chinese Laundry ..... *lb. 5@5½c*
Chinese Sad ..... *lb. 3½@3¼c*
Mrs. Potts', per set:

Nos.	*50*	*55*	*60*	*65*
	65@70c	*60@65c*	*75@80c*	*70@75c*

New England Pressing, lb. .. *3½@3¼c*

Soldering—
Soldering Copper ..... *16@17*
2 lb., and up ..... *19@20c*
Covert Mfg. Co ..... 20&2%
Smith & Hemenway Co's Sets 70%

Pinking—
Pinking Irons ..... *doz. 50@60c*

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel ..... 45&2%
Covert's Saddlery Works':
Daisy ..... 60&10%
Victor ..... 60&10%
Lockport ..... 40@40&10%
Lane's Steel ..... 33⅓&5%

Kettles—
Brass, Spun, Plain ..... *20@25%*
Enameled and Cast Iron—See *Ware, Hollow.*

Knife Sharpeners—See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Foster Bros.' Butcher, &c 30%
Hartzell Cutlery Co ..... 30&5%
Smith & Hemenway Co ..... 40&10%
Hay and Straw—See *Hay Knives.*
Corn—
Ft. Madison Cut-Easy, ₩ doz $3.25
Withington Acme, ₩ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 3, $1.15.
Drawing—
Standard List ..... *70&5@70&10%*
Adjustable Handle 35%
Bradley's 35%
Cantelo's Folding ..... 50@50&5%
C. E. Jennings & Co. Nos. 45, 46 .. 40&10%
Jennings & Griffin ..... 66⅔&5%
Swan's ..... 70&10&2½%
Watrous 25%
L. & I. J. White ..... 20&5@25%

Hay and Straw—
Lightning ..... *per doz $5.00@5.25*
Iwan's Sickle Edge ..... ₩ doz. $1.00
Iwan's Serrated ..... ₩ doz., $1.00
Maine ..... ₩ doz. $8.50

Mincing—
Buffalo ..... ₩ gro. $15.00

Miscellaneous—
Farriers' ..... *doz. $2.00@3.00*
Wostenholm's ..... ₩ doz. $3.00@3.25

Knobs—
Base, ¾-inch, Birch, or Maple, Rubber tip, gro ..... *$1.20@1.25*
Carriage, Jap. all sizes .. *gro. 30@33c*
Door, Mineral ..... *doz. 60@65c*
Door, Por. Jap'd ..... *doz, 65@70c*
Door, Por. Nickel ..... *doz $2.00@2.10*
Bardsley's Wood Door, Shutter, &c .. 15%
Picture, Sargent's ..... 60&10%

Lacing Leather—See *Belting, Leather—*

Ladders, Step, Etc.—
Goshen Mfg. Co.'s Step, etc. 50%
Myers' Step Ladders, Store Ladders 50%

Ladies— Melting—
L. & G. Mfg. Co. 25%
P. S. & W. 50%
Reading 60%
Sargent's ..... 40@40&10%

Lanterns— Tubular—
Regular Tubular ..... *doz. $4.35@4.75*
Left Tubular ..... *doz. $4.75@5.25*
Hinge Tubular ..... *doz. $4.75@5.25*
Other Styles ..... *40@10@40@10@5%*

Bull's Eye Police—
No. 1, 2¼ inch *$3.60*
No. 2, 3 inch *$4.00*

Latches, Thumb—
Roggyn's Latches ..... *doz. 30@33c*

Lawn Mowers—
See *Mowers, Lawn.*

Leaders Cattle—
Small ..... *doz. 50c; large, 55c*
Covert Mfg. Co. ..... 45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Solid Grip, Payson Mfg. Co. 80%
R. & E. 45%

Lines—

Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Ossawan Mills.
Crown Solid Braided Chalk.... 33⅓%
Mason's, No. 0 to No. 5 ..... 33⅓%
Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3 ..... 40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $5.50; No. 2, $7.00; No. 3, $7.50 ₩ gr. 80%

Locks— Cabinet—
Cabinet Locks ..... *33⅓@33⅓&7½%*

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading Hardware Co. 50%
R. & E. Mfg. Co. 50%
Sargent & Co. ..... 40@40&10%

Elevator—
Stowell's 40%

Padlocks—
Wrought Iron ..... *75@10@5@80@5%*
R. & E. Mfg. Co. Wrt. Steel and Brass. 50%

Sash, &c.—
Fitch's:
Bronze and Brass 66⅔%
Iron 70%
Ives' Patent.:
Bronze and Brass 62½%
Iron 65%
Wrought Bronze and Brass ..... 55&5%
Wrought Steel 60%
Payson's Signal 80%
Reading ..... 60&10&10@70%

Machines— Boring—
Common, Upright, Without Augers, *$2.00*
Common, Angular, Without Augers, *$2.10*

	Without Augers. Upright.	Angular.
R. & E. Mfg Co.:		
Improved No. 3	$4.25	No. 1 $5.00
Improved No. 4	3.75	No. 2 3.38
Improved No. 5	2.75	
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500	5.10	No. 200 6.45

Hoisting—
Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 30%
Moore's Portable Pneumatic Hoist.... 25%

Ice Cutting—
Chandler's 15%

Washing—
Wayne American ..... ₩ doz. $28.00
Western Star, No. 2 ..... ₩ doz. 28.00
Western Star, No. 3 ..... ₩ doz 30.00
St. Louis, No. 41 ..... ₩ doz. 60.00

Mallets—
Hickory ..... *45&5@50%*
Lignumvitæ ..... *55&5@50%*
Planers', Hickory and Applewood, doz. ..... *50@55c*

Mats— Door—
Elastic Steel (W. G. Co.) 10%

Mattocks—
See *Picks and Mattocks.*

Meat Cutters—
See *Cutters, Meat.*

Milk Cans— See *Cans, Milk.*

Mills— Coffee—
Enterprise Mfg. Co. ..... 25@30%
National, list Jan. 1, '94 ..... 30%
Parker's Columbia and Victor@ ..... 50&10@60%
Parker's Box and Side ..... 50&10@60%
Swift, Lane Bros. 30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers Lawn—
Net prices are generally quoted.
Cheap ..... *all sizes, $1.90@1.95*
Good ..... *all sizes, $2.25@2.50*

	10	*12*	*14*	*16-inch*
High Grade	*4.25*	*4.50*	*4.75*	*5.00*

Continental ..... 60&10&5%
Great American ..... 70&5%
Great American Ball Bearing.. 60&10&5%
Quaker City ..... 70&5%
Pennsylvania ..... 60&10&5%
Pennsylvania Golf 50%
Pennsylvania Horse 40%
Pennsylvania Pony 45%
Philadelphia:
Styles M., S., C., K., T. ..... 70&5%
Style A, all Steel ..... 65&10%
Style E, Low Wheel ..... 60&10%
Style F, High Wheel ..... 70&10&5%
Drexel and Gold Coin, low list.. 50&5%

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Pancred. List July 20, 1899 .85&10@85&10&10%
Hungarian, Finishing, Upholsters', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
A. C	25¢	23¢	22¢	21¢	21¢	40&5%
Ausable	25¢	25¢	25¢	24¢	23¢	50&10%
C. B. K.	25¢	25¢	22¢	21¢	21¢	40%
Champ'in	28¢	25¢	24¢	23¢		40&10&5%
Clinton	19¢	17¢	16¢	15¢	14¢	30&10&5%
Maud S.	25¢	23¢	22¢	21¢	21¢	50%
Putnam	23¢	21¢	20¢	19¢	18¢	33⅓%
Vulcan	28¢	21¢	20¢	19¢	18¢	25&10%
American, Nos. 5 to 10 ₩ ₤						9@9½¢
Neponset	Nos. 5 to 10¢ ₩ ₤ 12¢					
Jobbers' special brands	*per lb. 8@9c*					

Picture

	1¾	*2*	*2¼*	*3*	*3½ in.*
Brass Head	*.45*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head	..	*1.10*	*1.10*	*1.10*	*.. gro.*

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—
Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, plain ..... *$5.00@5.10*
Hexagon, plain ..... *$5.30@5.40*
Square, C. T. & R. ..... *$5.20@5.30*
Hexagon, C. T. & R. ..... *$5.80@5.90*
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank ..... *$5.20@5.30*
Hexagon Blank ..... *$5.80@5.90*
Square Tapped ..... *$5.00@5.10*
Hexagon Tapped ..... *$5.60@5.70*

Oakum—
Best or Government ..... *lb. 6¼c*
Navy ..... *lb. 5 c*
U. S. Navy ..... *lb. 6¼c*
Plumbers' Spun Oakum *8¼c*
In carload lots ¼c lb. off f. o. b. New York.

Oil Axle—
Snow Flake: 10&5%
1 pt. cans, per doz. $3.00
1 qt. cans, per doz. $4.80
1 gal. cans, per doz. $15 00
5 gal. cans, per doz. $66.00

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper ..... *40@10%*
Tin or Steel ..... *60@10%*
Zinc ..... *60@10%*
Paragon:
Brass and Copper ..... *40@10%*
Tin or Steel ..... *60@10%*
Zinc ..... *60@10%*
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
Wilmot & Hobbs Mfg. Co.:
Spring Bottom Cans ..... 70@70&10%
Railroad Oilers etc ..... 60@60&10%

Openers— Can—
French ..... *doz. 35c*
Iron Handle ..... *doz. 25@37c*
Sprague, Iron Hdle..per doz 35@40c
Sardine Scissors...doz. *$1.75@3.00*
Tip Top ..... per doz. $0.75
National, ₩ gro. ..... $1.75@$2.00
Stowell's ..... per doz. 35@45¢
Waldorf, ₩ gro. $3.85

Egg—
Nickel Plate ..... per doz., $2.25
Silver Plate ..... per doz., $3.50

Packing—
Asbestos Packing, Wick and Rope, 15@15½c lb.

Rubber—
Sheet, C. I. ..... *8@12c*
Sheet, C. O. S. ..... *9@13c*
Sheet, C. B. S. ..... *10@14c*
Sheet, Pure Gum ..... *50@70c*
Sheet, Red ..... *35@40c*
Jenkins' Standard, ₩ ₤ 80¢ ... 25@35&5%

Miscellaneous—
American Packing ..... *7@10c lb.*
Cotton Packing ..... *13@14c lb.*
Italian Packing ..... *9@12½c lb.*
Jute ..... *3½@4c lb.*
Russia Packing ..... *7@11c lb.*

Pails— Creamery
S. S. & Co., with gauges.. No 1 $6.50; No. 2, $6.75 ₩ doz.

Galvanized—
Price per doz.

	Quart	*10*	*12*	*14*
Water, Regular	..	*1.80*	*2.00*	*2.25*
Water, Heavy	....	....	*3.60*	*3.80*
Fire, Rd. Bottom	....	....	*2.25*	*3.00*
Well	....	*2.50*	....	....

Pans— Dripping—
Standard List ..... *50&10@50&10%*

Fry—
Common Lipped:

No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.60*	*.75*	*.85*	*.95*	*1.15*

Roasting and Baking—
Regal, S. S. & Co., ₩ doz., Nos. 5, $4.50; 10 $5.00; 20 $5.50; 30, $6.00.
Simplex, ₩ gro., No. 40 $30.00; 50, $34.50; 60 $39 00; 140, $33.00; 150, $37.50; 160, $43.00.

Paper—Building Paper—
Asbestos: *lb.*
Building Felt *3c*
Mill Board, sheet, 40 x 40 inches...4c
Mill Board, roll, thicker than 1-16 inch *3c*
Mill Board, roll, 1-16 in. thick and less *3c*

	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 20 lbs. to roll	*$0.32*
Medium wt., 30 lbs. to roll	*$0.47*
Heavy wt., 40 lbs. to roll	*$0.58*
Medium Grades Water Proof Sheathing	*$0.65@1.25*
Deafening Felt, 2, 3 and 4¼ sq. ft. to lb., ton	*$40.00@42.00*
Red Rope Roofing, 250 sq. feet per roll	*$1.65*

Tarred Paper.
1 ply (roll 500 sq. ft.), ton ..... *$38.00@30.00*
2 ply, roll 108 sq. ft. ..... *4c@4.5c*
3 ply, roll 108 sq. ft. ..... *60@65c*
Slater's Felt (roll 500 sq. ft.)..50@60c
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.75

Sand and Emery—
List Dec. 23, 1899 ..... *60@60&10%*

Parers— Apple—
Advance ..... ₩ doz. $4.50
Baldwin ..... ₩ doz. $5.00
Bonanza ..... each $5.00
Dandy ..... each $7.50
Eureka, 1898 ..... each $16.00
Family Bay State ..... ₩ doz. $12.00
Hudson's Little Star ..... ₩ doz. $4.00
Hudson's Rocking Table ..... ₩ doz. $5.50
Improved Bay State ₩ doz. $17.00@30.00
New Lightning ..... ₩ doz. $5.50
Reading 72 ..... ₩ doz. $4.00
Reading 78 ..... ₩ doz. $7.00
Turn Table '98 ..... ₩ doz. $5.50
White Mountain ..... ₩ doz. $4.00

Potato—
Saratoga ..... ₩ doz. $5.50
White Mountain ..... ₩ doz. $4.50

Paris Green— per lb.
Arsenic keys or casks ..... *11 @12 c*
Kegs, 100 to 175 lbs ..... *11½@12¾c*
Kits, 14, 28, 56 lbs ..... *12½@13½c*
Paper boxes, 2 to 5 lbs ..... *12½@13½c*
Paper boxes, 1 lb ..... *12½@13½c*
Paper boxes, ½ lb ..... *13½@14½c*
Paper boxes, ¼ lb ..... *14½@15½c*

Picks and Mattocks—
List Feb. 15, 1899 ..... *70@70&10%*

Pigeons - Clay
Markic's Black Birds, f. o. b. factory, per M $3.75
See also *Traps, Target.*

Pinking Irons—
See *Irons, Pinking.*

Pins— Escutcheon—
Brass *60%*
Iron, list Nov. 11, '85 ..... *60%*

Pipe, Cast Iron Soil—
Standard, 2-6 in. ..... *60@67½%*
Extra Heavy, 2-6 in. *70%*
Fittings ..... *75@5%*

Pipe, Merchant, Boiler Tubes, &c.—

Merchant Pipe.	*Black.*	*Galvanized*
⅛ to ½ inch	*61%*	*48%*
¾ to 10 inch	*68½%*	*56%*
Boiler Tubes	*Up to*	*22 feet*
Steel.		
1 to 1¾ inch and 2¾ to 5 inch inclusive		*65½%*
2 to 2½ inch, inclusive		*60%*
6 to 10 inches		*59%*
Iron.		
1 to 1½ inch and 2½ in.		*43½%*
1¾ to 2¼ inch		*53%*
2¾ to 15 inch		*53%*
Casing, Cut Lengths.	*S. & S.*	
2 to 8 inch		*53½%*
3¼ to 4 inch		*50%*
4¼ to 12½ inch		*61½%*

Pipe Sewer—
Standard Pipe and Fittings, 3 to 24 in.
New England *70%*
New York and New Jersey *75%*
Ohio and Michigan *80%*
Carload lots are generally delivered.

Planes and Plane Irons—
Wood Planes—
Molding ..... *40@2½@40@10%*
Bench, First quality 45@10@45@10@5%
Bench, Second qual..50@10@50@10@5%
Bailey's (Stanley R. & L. Co) ..... 25&10@25&10&10%
Gage Self Setting 35%

Iron Planes—
Bailey's (Stanley R. & L. Co) ..... 25&10@25&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10@25&10&10%
Sargent's ..... 50&10&10%

Plane Irons—
Wood Bench Plane Irons ..... *50@5@50@10@5%*
Buck Bros. 30%
Stanley R. & L. Co.... 30&10@20&10&10%
L. & L. J. White ..... 20@5@25%

Planters, Corn, Hand.
Kohler's Eclipse ..... ₩ doz. $9.00

Plates—
Felloe ..... *lb. 3½@4c*
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00 ..... 50%

Pliers and Nippers—
Button Pliers ..... *70@10@75%*
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45
Gas Pipe.. *7* *8* *10* *12-in.*
$1.75 *$2.00* *$2.75* *$3.75*
Acme Nippers ..... 50@50&5%
Bernard's:
Parallel Pliers, &c 35%
Paragon Pliers ..... 50&5%
Lodi Pliers ..... 30&5%
Elm City Fence Pliers 35%
Cronk Hanger Co.:
American Button ..... 75&10%
Cronk's 60%
Improved Button ..... 70&10%
Stub's Pattern 50%
Combination and others 25%
Haller's Farriers' Nippers, Pincers, and Tools 50@50&5%
P., S. & W. Tinners' Cutting Nippers ..... 30@30&10%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.. ..40%

Plumbs and Levels—
Plumbs and Levels ..... *75@75&10%*
Davis Iron, Machinist Nos. 1 to 14 ..... 20%
Davis Iron, Adjustable N. s. 6 to 49 ..... 35%
Disaron's 70%
Pocket Levels ..... 75&10&10@75&10%
Stanley R. & L. Co ..... 40@10&10&10%
Stanley's Duplex ..... 20@20&10&10%
Woods' Extension 33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₩ doz., No. 1, $7.20; No. 2, $11.00 No. 3, $11.00; No. 4, $14.50 ..... 50%

Points, Claziers'—
Bulk and 1 lb. papers.. *lb.* *8 c@*
¼-lb. papers ..... *lb.* *8½c@*
¼-lb. papers ..... *lb.* *9 c@*

Pokes, Animal—
Ft. Madison Hawkeye ..... ₩ doz. $1.2
Ft. Madison, Western ..... ₩ doz. $3.75

Police Goods—
Manufacturers' Lists ..... *25@25&5%*
Tower's 25%

Polish—Metal—
Prestoline Liquid, No. 1 (½ pt.), ₩ doz. $3.00; No. 2 (1 qt.), $9.72 ..... 40%
Prestoline Paste ..... 40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₩ doz. 50¢; ₩ gr. $4.50; ½ ₤ boxes, ₩ doz. $1.35; 1 ₤ boxes, ₩ doz. $2.35.
U. S. Liquid, 8 oz. cans, ₩ doz. $1.25; ₩ gr. $12.00.
Barkeepers' Friend Metal Polish, ₩ doz. $1.75; ₩ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₩ doz. $2.00

Stove—
Black Eagle Benzine Paste, 5 ₤ cans .. ₩ ₤ 10¢
Black Eagle, Liquid, ¼ pt. cans ..... ₩ doz. 75¢
Black Jack Paste, ¾ ₤ cans, ₩ gro. $9.00
Ladd's Black Beauty, gr. $10.00 ..... 50%
Joseph Dixon's, ₩ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ₩ ₤ 8¢
Fireside ..... ₩ gr. $2.50
Gem, ₩ gr. $4.50 ..... 10%
Japanese ..... ₩ gr. $3.50
Jet Black ..... ₩ gr. $3.50
Peerless Iron Enamel, ¼ pt. cans ..... ₩ doz. $1.50
Wynn's:
Black Silk, 5 ₤ pail ..... each 70¢
Black Silk, ¼ ₤ box ..... ₩ doz. $1.00
Black Silk, 5 oz. box ..... ₩ doz. $0.75
Black Silk, ½ pt. liq ..... ₩ doz. $1.00

Poppers, Corn—
Round or Square:
1 qt ..... *gro. $7.00@$7.50*
1½ qt ..... *gro. 9 50@ 10 00*
2 qt ..... *gro. 10.50@ 11.00*

Post Hole and Tree Auers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots— Glue—
Enameled *45%*
Tinned *40%*

Powder—
In Canisters:
Duck, 1 lb. each *15c*
Fine Sporting, 1 lb. each *75c*
Rifle, ½-lb. each *15c*
Rifle, 1-lb. each *25c*
In Kegs:
Duck, 6½-lb. kegs *$2.25*
Duck, 12½-lb. kegs *$4.25*
Duck, 25-lb kegs *$8.00*
Rifle, 6¼-lb kegs *$1.85*
Rifle, 12½-lb. kegs *$3.25*
Rifle, 25-lb. kegs *$6.00*
King's Semi-Smokeless:

	Shot Gun	Rifle
Keg (25 ₤ bulk)	$12 00	$15.00
Half Keg (12½ ₤ bulk)	6.25	7.75
Quarter Keg (6¼ ₤ bulk)	3.25	4.00
Case 24 (1 ₤ cans bulk)	14.00	17 00
Half case 12 (1 ₤ cans blk)	7.25	8 75

King's Smokeless: $4.25
Keg (25 ₤ bulk) $88.50
Half Keg (12½ ₤ bulk) $3.50
Quarter Keg (6¼ ₤ bulk) $1.90
Case 24 (1 ₤ cans bulk) $8.50
Half case (1 ₤ cans bulk) $4 50

Presses—
Fruit and Jelly—
Enterprise Mfg. Co. ..... 20@25%

Seal Presses—
Morrill's No. 1, per doz. $20.00 ..... 50%
Morrill's No. 2, per doz. $22 50 ..... 50%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—
Cyclops ..... 40@40&10%
Miller's Falls, No. 3, per doz. $12.00 ..... 15&10%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
Pelican, ₩ doz. $9.00 ..... 40&10%
Samson ..... ₩ doz. $18.00
Scranton, Case Lots:
No. 1 (large), ₩ doz. $6.50; No. 2 (large), $5.75; No. 3 (small), $5.00; No. 2-B (large), $5.50; No. 3-B (small), $4.00; No. 2-D (large), $4 50; No. 3-D (small) $4.00.
Smith & Hemenway Co.:
Diamond B, No. 2, case lots, ₩ doz $6.00
Diamond B, No. 3, case lots, ₩ doz $5.50
Giant, No. 1, ₩ doz. $18; No. 2, $15.50; No. 3, $13 ..... 40%

Pulleys—Single Wheel—

Inch	*1*	*2*	*3*
Awning ..doz.	*$0.45*	*.70*	*.95*
Inch	*1*	*2*	*3*
Hay Fork, Swivel or Solid Eye		*doz.*	*$1.35@1.50*
Hot House..doz	*$0.65*	*.90*	*1.20*
Inch	*1¼*	*1¼*	*1¾*
Screw	*doz. $0.15*	*.20*	*.25*
Inch	*1¾*	*2*	*2¼*
Side	*doz. $0.30*	*.40*	*.55*
Inch	*1¼*	*1¾*	*2*
Tackle	*doz. $0.30*	*.45*	*.65*

Stowell's:
Ceiling or End, Anti-Friction 60%
Dumb Waiter, Anti-Friction.. 60&10%
Hay Fork, Anti-Friction, 5-in. Wheel, ₩ doz. $12.00 ..... 50%
Electric Light 60%
Side, Anti-Friction ..... 60&10%

Sash Pulleys—
Common Frame; Square or Round End per doz., 1¾ in., 15c; 2 in., 18c
Auger Mortise, no Face Plate, per doz. 1¾ in., 12c.; 2 in., 15c.
Auger Mortise, with Face Plate, per doz., 1¾ i , 13c.; 2 in., 15½c.

Acme.....1¼ in., 16¢; 2 in., 19¢
Common Screws, 1¼ in.... ₱ doz., 18¢; 2 in., 20¢.
Box-All-Steel, Nos. 2 and 7, 2¼ in.
₱ doz. 25¢
No. 9, 1¼ in.... ₱ doz. 20¢
Extra for Plated Finish...₱ doz. 20¢
Extra for Anti-Friction Bronze Bushing.....₱ doz. 10¢
Grand Rapids All Steel Noiseless.....40%
Ideal No. 18.....1¼ in., ₱ doz., 18¢
Niagara.....1¼ in., 16¢; 2 in., 19¢
No. 20, Troy...1¾ in., 14½¢; 2 in., 16½¢
Star.....1¼ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@60&10%
Pitcher Spout.....75@75&10%
Wood.....50@50&10%
Pump Leathers, Lower and Plunger Valves—Per gro.:

Inch..	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch..	3	3¼	3½	3¾	4
	$3.30	3.60	3.85	4.10	4.30

Barnes Dbl. Acting (low list).....50%
Flint & Walling's Fast Mail (low list).50%
Flint & Walling's Pitcher Spout.....75%
Loud's Suction Pumps, U. S. Co.....20%
Myer's Pumps, low list.....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50&10%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....80%

Punches—

Revolving (4 tubes)...doz. $3.75@4.25
Saddlers' or Drive, good...doz. 65@70¢
Spring, single tube, good quality...
$1.65@1.75
Bemis & Call Co.'s Cast Steel Drive.....50%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50%
Morrill's No. 1 (A. B. C.), ₱ doz., $13.00.....50%
No. 2, ₱ doz. $21.50.....50%
No. 3, Metal, ₱ doz., $6.00.....50%
Bench Punch, each, $10.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Steel Screw, B & K. Mfg. Co.....40%
Tinners' Hollow, P., S. & W. Co.....
35@35&5%
Tinners' Solid, P., S. & W. Co., ₱ doz., $1.44.....60%

Rail— Barn Door, &c.—

Cast Iron, Barn Door; Flange Screw Holes for Rd. Groove Wheels:

½	⅝	¾	*In.*
$1.70	$2.10	$3.00	*100 feet.*

Angular for Sq. Groove Wheels:

Small.	*Med.*	*Large.*	
$1.60	1.95	2.70	*100 feet.*

Sliding Door, Brassed Wr't Iron, ft..6½c
Sliding Door, Iron Painted...3½&3c
Sliding Door, Wrought Brass, 1¼ in.....lb. 36c..30%
Cronk's Double Braced Steel Rail, ₱ foot.....3½¢
Cronk's O. N. T. Rail.....3½¢
Lanes' O. N. T., ₱ 100 ft., 1 inch....$2.85
Lanes' Standard, ₱ 100 ft.....3.75
Lawrence Bros.' .....₱ ft. 4½¢
McKinney's None Better.....₱ ft. 3½¢
McKinney's Standard.....₱ ft. 4 ¢
Stowell's Cast Rail.....1½¢
Stowell's Steel Rail, Plain.....2½¢
Stowell's Wrought Bracket, Plain....3½¢

Rakes—

Net Prices, Malleable Rakes:

10	*12*	*14*	*16-tooth*
Shank.....$1.50	1.60	1.75	1.85
Socket.....$1.65	1.80	1.95	2.10

Sept. 1, 1900, List:
Cast Steel.....70¢&5¢&2%
Malleable.....70¢&10@75¢&5%
Lawn Rakes, Metal Head, per doz.,
20 teeth.....$3.25@3.50
24 teeth.....$3.60@3.75
Fort Madison Red Head Lawn.....$3 25
Fort Madison Blue Head Lawn.....$3.00
Jackson Lawn, 29 and 30 teeth.....
₱ doz. $4.00
Kohler's:
Lawn Queen, 20-tooth, ₱ doz.....$3.60
Lawn Queen, 24-tooth, ₱ doz.....$3.75
Paragon, 20-tooth, ₱ doz.:.....$2.85
Paragon, 24-tooth, ₱ doz.....$3.00
Steel Garden, 14-tooth, ₱ doz.....$3.00
Malleable Garden, 14-tooth ₱ doz. $2.25

Rasps, Horse—

Disston's.....75%
Heller Bros.....70&5%
McCaffrey File Co. Horse Rasps.60&10&5%
New Nicholson Horse Rasp.....70&10%
See also *Files.*

Razors—

Boracic.....70%
Fox Razors, No. 43...₱ doz. $20.00
Fox Razors, No. 44...₱ doz. $24.00
Fox Razors, No. 83, Platina, ₱ doz. $34.00 } dis. 40%
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 0.....$15.00
Griffon, No. 00.....$12.00
All other Razors.....40%
Safety Razors.....40%

Razor Strops—

See *Strops, Razor.*

Reels— Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Popule and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 504 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02004N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 42 and PN, 2904N, 2904P and PN, 02304PN, 0924 and 0924M, 3009N and PN.....40&10%
Shakespeare, Style O.....25%

Registers—

List Sept. 2, 1901.

Black Jap	60¢10¢&5% @70¢&5%
White Jap	
Bronzed	
Nickel Plated	
Electro Plated	

There is a good deal of irregularity in prices of Registers, especially in Black Japanned, and some jobbers and manufacturers are using the old list.

Revolvers—

Single Action.....85@90¢
Double Action, except 44 calibers..$1.65
Double Action, 44 calibers.....$1.65
Automatic.....$1.10
Hammerless.....$1.00

Riddles, Grain or Sand—

12 in. per doz.....$2.00@$2.25
17 in. per doz.....$2.25@$2.50
18 in. per doz.....$2.50@$2 75

Rings and Ringers—

Bull Rings—

Steel.....	$0.80	0.90	0.95 *doz.*
Copper.....	1.10	1.50	1.50 *doz.*

Hog Rings and Ringers—

Hill's Rings....*gro. boxes, $4.00@4.50*
Hill's Ringers, Gray Iron. doz. 55@60c
Hill's Ringers, Mal. Iron, doz. 75@80c
Blair's Rings.....*per gro. $5.00@5.25*
Blair's Ringers...*per doz. $0.60@ .65*
Brown's Rings....*per gro. $6.00@6.25*
Brown's Ringers..*per doz. $1.00@1.10*
Rapid Rings.....₱ gro. $6.00
Rapid Ringers.....₱ doz. $3.50

Rivets and Burrs—

Copper.....50¢&10@50¢&10¢&5%
Iron or Steel:
Tinners'.....70@70¢&10%
Miscellaneous.....70@70¢&10%

Rivet Sets—See *Sets*

Roasting and Baking Pans—See *Pans, Roasting and Baking.*

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....50&10&10%
Cronk's Stay.....60&5%
Cronk's Brinkerhoff.....60%
Lane's Stay.....33⅓%
Stowell's Barn Door Stay...₱ doz. $1.35

Rope—

Manila, 7-16 in. and larger
lb. 12 @ ..
Manila.....*¾-inch*.....*lb. 13½@* ..
Manila ¼ & 5-16 in.....*lb. 14* @ ..
Manila, Tarred Rope, 15 thread.....*lb. 13* @ ..
Manila Hay Rope.
Medium.....*lb. 13* @ ..
Sisal, 7-16 in. and larger.....*lb. 9* @ 9¼¢
Sisal.....*¾-inch*...*lb. 9¼@* 9¾¢
Sisal, ¼ and 5-16 in.....*lb. 10* @10¼¢
Sisal, Hay Rope, 2 to 10 ply.....*lb. 9¼@* 9¾¢
Sisal, Tarred, Medium Lath Yarn.....*lb.* .. @ 8¾¢
Cotton Rope:
Best.....*¼-in. and larger lb. 13½¢*
Medium...*¼-in. and larger lb. 11 c*
Com.....*¼-in. and larger lb. 9 c*
Jute Rope:
Thread No. 1, ¼-in. and up lb. 6½c
Thread No. 2, ¼-in. and up lb. 6 c
Yarn, ¼ in and up.....*lb. 5 c*

Wire Rope—

Galvanized.....25¢&7½%
Plain.....30¢&7½%

Ropes, Hammock—

Covert Mfg. Co.....45&2%
Covert Saddlery Works.....60&5%

Rules—

Boxwood.....60@60¢&10%
Ivory.....35¢&10@35¢&10¢&10%
Chapin-Stephens Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10¢&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Stanley R. & L. Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10¢&10%
Upson Nut Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10¢&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—

See *Paper and Cloth.*

Sash Cords—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers Sausage.*

Saw Frames—See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins:
Circular.....50@50&10%
Band.....50¢10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50&10%
One-Man Saw.....40%
Wood Saws.....40%
Rand, Compass, &c.....40%
Disston's:
Circular Solid and Inserted Tooth..50%
Band 2 to 14 in. wide.....60%
Band ¼ to 1¾.....70%
Crosscuts.....45@45&10%
Narrow Crosscuts.....50@50&10%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35@35&7½%
Woodsaw Blades.....40@40&7½%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 8, 16, d100, D8, 120, 70, 77, 8.....25@25&7½%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30@30&7½%
Compass, Keyhole, &c.....35@35&7½%
Butcher Saws and Blades...35@35&7½%
C. E. Jennings & Co.'s.:
Back Saws.....25%
Butcher Saws.....35%
Compass and Key Hole Saws.....25%
Framed Wood Saws.....40%
Hand Saws.....25@30%
Wood Saw Blades.....40%
Peace:
Circular and Mill.....30%
Cross Cuts, list Jan. 1, '98.....50%
Hand, Panel and Rip.....30%
Richardson:
Circular and Mill.....30%
Hand, &c.....30%
X Cuts, list Jan. 1, '99.....50%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Compass, Keyhole, &c.....25@25&7½%
Wood Saws.....25@25&7½%

Hack Saws—

Disston:
Concave Blades.....35%
Keystone.....30%
Hack Saw Frames.....30%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180, 330.....40%
Hack Saws, Nos. 175, 180, 330, complete.....40%
Griffin's Hack Saw Frames.....45%
Griffin's Hack Saw Blades.....45%
Star Hack Saws and Blades.....33&10%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....
Barnes' Velocipede Power Scroll Saw, without boring attachment, $15; with boring attachment, $30.....20%
Lester, complete, $16.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scale Beams—

See *Beams, Scale.*

Scales—

Family, Turnbull's.....30@30¢&10%
Counter:
Hatch, Platform, ¼ oz to 8 lbs. doz $5.50
Two Platforms, ½ oz to 8 lbs. doz. $16
Union Platform, Plain...$1.70@1.90
Union Platform, Striped $1.85@2.15
Chatillon's:
Eureka.....25%
Favorite.....40%
Grocers' Trip Scales.....50%
Pelouze Scales—Household, Counter, Confectionery, Postal, Tea, &c.....50%
"The Standard" Portables.....40%
"The Standard" R. R. and Wagon.....50%

Scrapers—

Box, 1 Handle.....*doz. $2.25@2.50*
Box, 2 Handle.....*doz. $3.75@4.00*
Ship, No. 1, doz. $3.50; No. 2, $2.25@2.40
Adjustable Box Scraper (S. R. & L. Co.) $8.00.....30@30&10%

Screens, Window, and Frames—

Bonanza Window Screens.....60@60&5%
Cortland Victor Screens.....60@60&5%
Flyer Pattern Window Screen..60@60&5%
Maine Window Screen Frames.40&10&5%
Perfection Window Screens.....60@60&5%
Phillips' Window Screen Frames.....
60&10&5%
Porter's Hummer Window Screens..
60@60&5%
Porter's Klondike Window Screens.....
60@2½@60&7½%
Wabash Spring Adj. Screen.....50%
See also *Doors.*

Screw Drivers—

See *Drivers, Screw.*

Screws—Bench and Hand—

Bench, Iron...doz. 1 in., $3.00@3.25; 1¼, $3.50@3.75; 1½, $4.00@4.50
Bench, Wood, Beech...doz. $2.50@2.75
Hand, Wood.....50¢&5@50%
Hand, R. Bliss Mfg. Co.....25%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99.....75¢&5@...%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....75@...%
Hand Rail, list Jan. 1, '81.60¢10@...%

Jack Screws—

Standard List.....75@75¢&10%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50&50&5%
Sargent.....70&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.50@50¢&10%
*Flat or Round Head, Brass*50@50¢&10%

Set and Cap—

Set (Iron or Steel).....70¢10¢&10%
Sq. Hd. Cap.....65¢10¢&10%
Hex. Hd. Cap.....65¢10¢&10%
Rd. or Fillister Hd. Cap...60¢10¢&10%

Wood—

List Jan. 1, 1900.
Manufacturers' printed discounts:
Flat Head, Iron.....87½@90%
Round Head, Iron.....85@87½%
Flat Head, Brass.....85@87½%
Round Head, Brass.....82½@85%
Flat Head, Bronze.....75@80%
Round Head, Bronze.....77½@77½%
Drive Screws.....87½@90%
NOTE.—*Extra 5@10% often given.*

Scroll Saws—See *Saws, Scroll.*

Scythes— Per doz.

Clipper Pattern, Grass.....$1.25
Full Polished Clipper.....$1.75
Grain.....$7.00
Clipper, Grain.....$7.50
Wood and Bush.....$1.90

Scythe Snaths—

See *Snaths, Scythe.*

Seeders— Raisin—

Enterprise.....25@30%

Sets— Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools...
doz. $2.50@2.80
Aikens Sets, Awl and Tools:
No. 20, ₱ doz. $10.00.....50&10&10%
Fray's Adj. Tool H dls...Nos. 1, $1.2; 2, $1.9; 3, $1.2; 4, $9; 5, $7.....50%
Millers Falls Adj. Tool Hdls, No. 1 $13; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Exhibitor:
No. 1, $7.50; No. 2 $4.50; No. 3, $3.50.....30@30&10&10%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.....
₱ doz.....$9.00

Nail—

Square.....*per gro. $2.50*
Round, Blk. and Pol., assorted.....
gro. $1.80@2.50
Octagon.....*gro. $4.25@4.75*
Knurled, Good.....*gro. $6.00@6.50*
Buck Brothers.....37½%
Cannon's Diamond Point, ₱ gr. $12..25%
Mayhew's.....per gro. $2.00
Snell's Corrugated, Cup Pt. per gro, $7.50
Snell's Knurled, Cup Pt....per gro $7.50

Rivet—

Regular list.....70@70¢10¢&5%

Saw—

Aiken's:
Genuine.....₱ doz. $5.50@6.00
Imitation.....₱ doz. $3.00@3.10
Atkin's.:
Criterion.....40%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Hammer, new Pat.....45%
Plate.....20%
Spring Hammer.....30%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.63.....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.63.....50%
No. 1 Old Style, $10.00.....50%
Taintor Positive, ₱ doz. $18.....60%

Sharpeners, Knife—

Chicago Wheel & Mfg. Co.....65%
Smith & Hemenway Co.....70&5%
Tanite Mills ₱ gross, $14.40....25@33⅓%

Sharpeners, Skate—

Eureka Skate Sharpener.....₱ doz. $3.00

Shaves, Spoke—

Iron.....*doz. $1.00@1.25*
Wood.....*doz. $1.75@2.00*
Bailey's (Stanley R. & L. Co.).....
50&50&10&10%
Goodell's, ₱ doz. $9.00.....15&10%

Shears—

Cast Iron...	7	8	9 *in.*
Best.....	$16.00	18.00	20.00 *gro.*
Good.....	$13.00	15.00	17.00 *gro.*
Cheap....	$5.00	6.00	7.00 *gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70¢&70¢&20%
" *Nickel*.....60¢&60¢&10%
Fair qual. Jap.....80¢&60¢&5%
" *Nickel*.....75¢&75¢&10%
Tailors' Shears.....40¢&40¢&10%
Acme Cast Shears.....40¢&40¢&5%
Heinisch's Tailors' Shears.....40%
Wilkinson's Hedge.....50%
Wilkinson's Sheep.....1900 list, 50%

Tinners' Snips—

Steel Blades.....20¢&10%
Steel Laid Blades.....40¢&10%
Forged Handles, Steel Blades, Berlin..
40¢&10&10%
Jennings & Griffin Mfg. Co's. 7 to 10 inch.....50%
Niagara Snips.....40%
P. S. & W. Co.....20%

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00.....25@25&10%
John T. Henry Mfg. Company:
Pruning Shears, all grades..40@40&5%
Orange Shears.....50&10@50&20%
Grape.....40&10@50%
Tree Pruners.....75%
Nagler's Pruning Shears.....10&5%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller Hatfield's, Sargent's list.....75&10&10%
Reading.....70&10@75%
R. & E. list.....33⅓%
Wrightsville, Hatfield Pattern.....50%

Sliding Shutter—

Reading list.....70&10@75%
R. & E. list.....33⅓%
Sargent's list.....50&10½&10%

Shells— Shells, Empty—

Brass Shells, Empty:
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge..
65&5%
Paper Shells, Empty:
Acme, 'Ideal, Leader, New Rapid, Magic 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, New Victor, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge.....20%
Climax, Union, League, New Rival 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ($7.50 list)..30%
Expert Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓&25%

Shells, Loaded—

Loaded with Black Powder.....40¢5%
Loaded with Smokeless Powder, medium grade.....40¢10%
Loaded with Smokeless Powder, high grade.....40¢10¢10¢5%

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg.
Iron.....*per keg $3.00*
Steel.....*per keg 3.25*
Burden's, all sizes, ₱ keg.....$3.60

Shot—

Drop, up to B, 25-lb. bag.....$1.35
Drop, B and larger, per 25-lb. bag...
$1.60
Buck, 25-lb. bag.....$1.60
Chilled, 25-lb. bag.....$1.60
Dust Shot, 25-lb. bag.....$1.10
Markle's Chilled.....$1.60
Raymond Chilled.....$1.60

Shovels and Spades—

Association list.....40%
Note.—Common Plain Back Shovels are generally sold by jobbers at $4.75@7.00.

Sieves and Sifters—

Hunter's Imitation, gro. $11.00@11.50
Buffalo Metallic Blued, S. S. & Co., ₱ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

F. J. Meyers' Mfg. Co.:
Eclipse, ₱ gr. $11.00
Electric Light, ₱ gr. $11.00
Hunter's Genuine, ₱ gr. $12.50
No Name, Hunter's, ₱ gr. $11.00
Standard, ₱ gr. $11.00
Shaker (Barler's Pat.) Flour Sifters, ₱ doz., $2.00, 20%

Sieves, Tin Rim—

Per dozen

Mesh	14	16	18	20
Black, full size	$0 95	.98	1.00	1.10
Plated, full size	$1.05	1 08	1.10	1.20
Black, scant	$0.78	.80	.83	

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz. $0.65@0 75
Mesh 20, Nested, doz. .75@ .85
Mesh 24, Nested, doz .90@1.00

Sinks—

Cast Iron—

Standard list 65&10@70...%
NOTE.—*There is not entire uniformity lists used by jobbers.*

Wrought Steel—

New Era, Galv'd and Enameled...70&5%
New Era, Painted...50&10%
L. & G. Mfg. Co., Galvanized...50%
L. & G. Mfg. Co. Enameled...50%

Skeins, Wagon—

Cast Iron...70&10@75%
Malleable Iron...40&10@50%
Steel...40@40&10%

Slates—

Factory Shipments.
"D" Slates...50&10&10&10%
Unexcelled, etc., Noiseless Slates..60 & 3 tens %
Victoria, etc., Noiseless Slates..60& 7 tens &5%
Wire Bound...50&10&5%
Web Hinge...50%

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—

Sterling $2.00...33⅓

Snaps, Harness—

German...40@40&10%
Covert Mfg. Co.:
Deroy...35&2½
High Grade...45&2½
Jockey...40&2½
Trojan...45&2½
Yankee...35&2½
Yankee, Roller...30&2½
Covert's Saddlery Works:
Crown...60%
German...60%
Model...60%
Triumph...60%
W. & E. T. Fitch Co.:
Bristol...40&10%
Empire...50&5%
German...40%
National...50&5%
Perfect...40%
Clipper...50&5%
Champion...40%
Security...40%
Victor...60&5%
Oneida Community:
Solid Steel...65@65&10%
Solid Swivel...65&10@65&10&10%
Sargent's Patent Guarded...66⅔&10%

Snaths—

Scythe...50@50&10%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Good Quality...60&10@60&10&5%
Cheap...60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton...40&10%
Rogers & Bro., William Rogers Eagle Brand...50&10%
Anchor, Rogers Brand...60%
Wm. Rogers & Son...60&10%
Simeon L. & Geo. H. Rogers Co.:
Silver Plated Flat Ware...60%
No. 77 Silver Plated Ware...60&10%

Miscellaneous—

German Silver...60&10@60&10&10%
Cattaraugus Cutlery Co.:
Yukon Silver...150%
Simeon L. & Geo. H. Rogers Co.:
German or Nickel Silver, Special list 1.&10%

Tinned Iron—

Teas...per gro. 45@5.c
Tables...per gro. 90c@$1.00

Springs—

Door—

Gem (Coil)...20%
Star (Coil)...30%
Torrey's Rod, 39 in...₱ doz. $1.10@1.25
Victor (Coil)...50&10&10%

Carriage, Wagon, &c.

1¼ in. and Wider:
Black or ⅛ Bright, lb...4¼c
Bright, lb...5¼c
Painted Seat Springs:
1¼ x 32 x 26 and smaller, per pr 48@53c
1¼ x 2 x 28 per pr...56@61c
1¼ x 3 x 28 and narrower, per pr. 76@80c
Cliff's Springs:
Bolster...40%
Seat...per pair 50¢
Pole...per pair, ⅝ in. $1.10; ¾ in. $1.25

Sprinklers, Lawn—

Enterprise...25@20%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24...50%

Squares—

Nickel plated... } *List Jan. 5, 1900*
Steel and Iron... } ...75&75@5%
Rosewood Hdl Try Square and T. Bevels...60&10&10@70%
Iron Hdl. Try Squares and T-Bevels. 40&10@40&10&10%
Disston's Try Sq. and T-Bevels...60&10%
Winterbottom's Try and Miter...40&10@40&10&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap...doz. $2.50@2.75
Good Grade...doz. $3.00@3.50
Tinned Iron...doz. $0.75@1.25
Iron, Porcelain Lined doz. $2.90@3.25
Jennings' Star...₱ doz. $1.85@1.90

Staples—

Barbed Blind...lb. 6@6½c
Electricians', Association list...80&10&10&10%
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting, Staples...per lb.. 3¼@3¼c
Grand Crossing Tack Co.'s list...80&10%

Steels, Butchers'—

Dick's...30%
Foster Bros'...30%
Hartzell Cutlery Co...40&5%
C. & A. Hoffmann's...40%

Steelyards...25@25&10%

Stocks and Dies—

Blacksmiths'...40@40&10%
Gardner Die Stocks No. 1...50%
Gardner Die Stocks, larger sizes...40%
Green River...25%
Lightning Screw Plate...25%
Little Giant...25%
Reece's New Screw Plates...25@30%
Curtis Reversible Ratchet Die Stock..25%

Stone—

Scythe Stones—

Chicago Wheel & Mfg. Co:
Gem Corundum, 9) inch, $3.00 per gro., 12 inch, $10.
Pike Mfg. Co. 1901 list:
Black Diamond S. S...₱ gro. $12.00
Lamoille S. S...₱ gro. $11.00
White Mountain S. S...₱ gro. $9.00
Green Mountain S. S...₱ gro. $6.00
Extra Indian Pond S. S. ₱ gro. $7.50
No. 1 Indian Pond S. S...₱ gro. $7.00
No. 2 Indian Pond S. S...₱ gro. $4.50
Leader Red End S. S...₱ gro $4.50
Balance of 1901 list 33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grit...50%
Gem Corundum Axe, Single or Double Grit...55%
Gem Corundum Slips...55%
Gem Corundum Razor Hones...50%
Pike Mfg. Co. 1901 list: ₱ lb
Arkansas Stone, No. 1, 3 to 5 in. $2.30
Arkansas Stone, No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1...$4.00
Lily White Washita 4 to 8 in...60¢
Rosy Red Washita, 4 to 8 in...60¢
Washita Stone, Extra, 4 to 8 in...50¢
Washita Stone, No. 1, 4 to 8 in...40¢
Washita Stone, No. 2, 4 to 8 in...30¢
Lily White Slips...90¢
Rosy Red Slips...90¢
Washita Slips, Extra...80¢
Washita Slips, No. 1...70¢
India Oil Stones (entire list)...25%
Hindostan No. 1, Regular...₱ lb 8¢
Hindostan No. 1 Small...₱ lb 10¢
Axe Stones (all kinds)...33⅓%
Turkey Oil Stones, ex. 5 to 8 in. ₱ lb 80¢
Queer Creek Stones, 4 to 8 in...20¢
Queer Creek Slips...10¢
Sand Stone...3¢...40%
Belgian, German and Swaty Razor Hones...40%
Natural Grit Carving Knife Hones, ₱ doz...$3.00
Quick Edge Pocket Knife Hones, ₱ doz...$3.00
Mounted Kitchen Sand Stone, ₱ doz...$1.50
Tanite Mills:
Emery Oil, ₱ doz. $5.00...50@60%

Stoners—

Cherry—

Enterprise...25@30%

Stops, Bench—

Millers Falls...15&10%
Morrill's...₱ doz., No. 1, $10.00...50%
Morrill's, No. 2, $12.50...50%

Stops, Window—

Ives' Patent...25&5%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Strainers, Pump—

Diamond Joe Pump Strainers..per doz. 75¢

Straps, Box—

Cary's Universal case lots...20&10%

Stretchers, Carpet—

Cast Iron, Steel Points...doz. 55@65c
Socket...doz. $1.75

Strops, Razor—

Smith & Hemenway Co...70%

Stuffers, Sausage—

Enterprise Mfg. Co...25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97...30%

Tacks Brads, &c.—

List Jan. 15, '99.
Carpet Tacks, American 90¢25@...%
American Cut Tacks...90¢20@...%
Swedes Iron Tacks...90¢30@...%
Swedes Upholsterers' Tacks...90¢40@...%
Gimp Tacks...90¢50@...%
Lace Tacks...90¢40@...%
Trimmers' Tacks...90¢25@...%
Looking Glass Tacks...70¢10%
Bill Posters' and Railroad Tack...90¢40@...%
Hungarian Nails...80¢15%
Common and Patent Brads...80¢10%
Trunk and Clout Nails...80¢5%

NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10&5% on Standard Weights.****

Miscellaneous—

Double Point Tacks...90¢6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list...50¢10@60%
See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co...30-gal. $3.20
Emerald, S. S. & Co...50-gal., $4.00
Queen City S. S. & Co., 30-gal...$3.50
Queen City S. S. & Co., 50-gal...$4.25

Tapes, Measuring—

American Asses' Skin...40¢10@50%
Patent Leather...25@30@5%
Steel...40@40@5%
Chesterman's...25@25@5%
Eddy's Steel...40@40&5%
Eddy's Metallic...33⅓@33⅓&5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899...35%
Lufkin's Steel...33⅓@35%
Lufkin's Metallic...30@30&5%

Teeth Harrow—

Steel Harrow Teeth, plain or headed, base per lb...2¼c

Thermometers—

Tin Case...80¢10@30¢10¢5%

Ties, Bale—Steel.

Single Loop...75%
Other Styles...70%

Ties, Wall—

Cleveland Wire Spring Co.:
Galv. Steel 5-32 x 6¼ in. ₱ 1000...$10.00
Galv. Steel 5-32 x 8½ in. ₱ 1000...$11.00
Galv. Steel 5-32 x 11¼ in. ₱ 1000...$12.00
Galv. Steel 5 32 x 15¼ in. ₱ 1000...$14.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

L. & I. J. White...20@20&5%

Saw—

Atkins' Cross Cut Saw Tools...40%
Simonds' Improved...33⅓%
Simonds' Crescent...25%

Ship—

L. & I. J. White...25%

Transom Lifters—

See *Lifters, Transom.*

Traps—

Fly—

Balloon, Globe or Acme... doz. $1.15@1.25; gro. $10.50@11.00
Harper, Champion or Paragon doz. $1.25@1.50; gro. $12.00@12 50

Game—

Oneida Pattern...75¢10¢5@80¢5%
Newhouse...45@45&5%
Hawley & Norton...65&5@65&10%
Victor (Oneida Pattern)...75@75&5%
Star (Blake Pattern)...60&5@60&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes...8½@9c
Mouse, Round or Square Wire... doz. $0.85@1.00
American Pattern French Rat and Mouse Traps—
No. 1, Detroit Marty Pattern, ₱ doz. $4.50; in ½ gro. lots, ₱ doz...$4.00
No. 2, Detroit Marty Pattern, ₱ doz. $3.25; in ½ gro. lots, ₱ doz...$3.00
Detroit Marty Pattern Mouse, ₱ doz. $2.00; in ½ gro. lots, ₱ doz...$1.75
Diamond Joe Mouse Traps...per doz. 60¢
Diamond Joe Rat Traps...per doz. $1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½...₱ doz. $12.00
No. 3, Rat, ₱ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ₱ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₱ doz. $3.50; case of 72 $2.75 doz.
No. 5, Mouse, ₱ doz. $2.75; case of 150 $2.25
Schuyler's Rat Killer, No. 1, ₱ gr. $30.00; No. 2, ₱ gr. $20.00; Mouse, No. 3, $18.00...50%

Target—

Markle's, each...$5.50

Trimmers, Spoke—

Bonney's Nos. 1 and 2...40%

Trowels—

Disston Brick and Pointing...30%
Disston Plastering...25%
Disston "Standard Brand" and Garden Trowels...40%
Never-Break Steel Garden Trowels... gro. $7.00
Peace's Plastering...30%
Rose Brick and Plastering...25&5%
Woodrough & McParlin, Plast'ring...25%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list...50%
Daisy Stove Trucks, Improved pattern ₱ doz. $18.50
Model Stove Trucks...₱ doz $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	*5 50*	*6.00*
Galvanized Wash Tubs (S. S. & Co.):			
No.	1	2	3	10	20	30
Per doz.	$5 25	6.00	6.75	6.50	7 25	8.00

Twine—

Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*22c*	*21c*
No. 12, ¼ and ½-lb. balls	*18c*	*20c*
No. 18, ¼ and ½-lb. Balls	*16c*	*18c*
No. 24, ¼ and ½-lb. Balls	*15½c*	*17½c*
No. 36, ¼ and ½-lb. Balls	*15c*	*17c*
Chalk Line, Cotton, ½-lb Balls..		*22@22½c*
Cotton Mops, 6, 9, 12 and 15 lb. to doz...		*70@85c*
Cotton Wrapping, 5 Balls to lb... according to quality...		*10¼c@17c*
American 3-Ply Hemp, ¼ and ½-lb. Balls...		*13@15c*
American 3 Ply Hemp, 1-lb. Balls..		*13@15c*
India 3-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)...		*8c*
India 3-Ply Hemp, 1-lb. Balls...		*8c*
India 3-Ply Hemp, 1¼-lb. Balls...		*7c*
2, 3, 4 and 5-Ply Jute, ½-lb. Balls...		*9@10c*
Mason Line, Linen, ½-lb. Balls...		*15c*
No. 264 Mattress, ¼ and ½-lb. Balls		*8c*
Wool, 3 to 6 ply...		*8c*

Vises—

Solid Box...50@50&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable...40%
Standard...40%
Amateur...25%
Bonney's...40%
Columbian Hdw. Co...40%
Fisher & Norris Double Screw...15&10%
Hollands':
Machinists'...40%
Keystone...65&5%
Lewis Tool Co...20@30%
Massey's Perfect...15@20%
Massey's:
Clincher...30@40%
Combination, Quick Adj...40%
Woodworker's...15@20%
Merrill's...20%
Miller's Falls...50&10&10%
Parker's:
Victor...20@25%
Regulars...20@25%
Vulcan's...40@45%
Combination Pipe...55@60%
Prentiss...20@25%
Sargent's...40%
Snedliker's X. L...20@25%
Stephens'...20@25%

Saw Filers—

Bonney's, No. 1, $13; No. 3, $16...50%
Disston's D 8 Clamp and Guide, ₱ doz. $36...25%
Reading...60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3...45&50%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise...60%
Parker's Combination Pipe:
87 Series...60%
187 Sereis...60&5%
No. 870...40%

Wads—Price Per M.

B. E., 11 up	*60c*
B. E., 9 and 10	*70c*
B. E., 8	*80c*
B. E., 7	*80c*
P. E., 11 up	*$1.00*
P. E., 9 and 10	*1.25*
P. E., 8	*1.50*
P. E., 7	*1.50*
Ely's B E., 11 and larger	*$1.70@1.75*
Ely's P. E., 12 to 20	*$3 00@3.25*

Discounts 10 to 15%

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List...40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground...65%
Unground...70%
White Enameled Ware:
Maslin Kettles...75c10c&5@80%
Covered Ware:
Tinned and Turned...40¢10@40&10¢5%
Enameled and Plain..50@50¢10¢5%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware, list Nov. 1, 1901...50&10%
Iron Clad Ware...70&10%
Never Break Enameled...50&5@50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.

Avery Spiders & Griddles...65@65&5%
Avery Kettles...60%
Porcelained...50&5@50&10%
Never Break Spiders and Griddles... 65&5%
Never Break Kettles...60%
Solid Steel Spiders & Griddles...65&5%
Solid Steel Kettles...60%
Solid Steel Ware, Enameled...50&5%

Washboards—

Solid Zinc: ₱ doz
Crescent, family size, bent frame...$3.00
Ited Star, family size, stationary protector...$3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector...$2.65
Cable Cross, family size, stationary protector...$2.40
Single Zinc Surface:
Salad, family size, open back perforated...$2.40
Saginaw Globe, protector, family size, ventilated back...$2.25

Brass Surface:
Brass King, Single Surface, open back $9.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00

Washers—
Leather, Axle—
Solid.....85&10&10@85&10&10&10%
Patent.....85&10@85&20%
Coil: ⅞ 1 1¼ 1¼ Inch.
10c 11c 13c 18c per 100

Iron or Steel
Size bolt ... 5-16 ⅜ ½ ⅝ ¾
Washers....$5.10 4.20 3.90 3.70 3.50
In lots less than one keg add ¼c per lb., 5-lb. boxes add ½c to list.

Cast Washers—
Over ½ inch, barrel lots, per lb.....
1⅛@1¼c

Washer Cutters—
See *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Wedges—
Oil Finish.....lb. 2.90@3.10c

Weights, Sash—
Per ton, f.o.b. factory....$21.00@22.00

Some Foundries make price $1@$2 lower.

Well Buckets, Galvanized
See *Pails, Galvanized.*

Wheels Well—
8-in., $1.15@1.65; 10-in., $1.75@2.00; 12-in., $2.35@2.50; 14-in., $3.50@3.75

Wire and Wire Goods—
Bright and Annealed:
6 to 9.....75½&5@73½&10%
10 to 18.....73½&10@71½&10&5%
19 to 26.....75&10&2½@75&10&7½%
27 to 36.....75&10&7½@80&2½%
Galvanized:
6 to 18.....70@70&5%
19 to 26.....73½&5@73½&10%
27 to 36.....73½&10@73½&10&5%
Coppered:
6 to 9.....70&5@70&10%
10 to 18.....70&10@70&10&5%
19 to 26.....75&7½@75&10&2½%
27 to 36.....75&10@75&10&5%
Tinned:
6 to 14.....75@75&7½%
15 to 18.....73½&5@73%
19 to 26.....70&5@70&5&5%
27 to 36.....70@70&5%
Annealed Wire on Spools..70&5@70&10%

Brass and Copper Wire on Spools. 60&5@60&10%
Brass, list Feb. 26, '96.....80%
Copper, list Feb. 26, '96.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £. 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
List April 1, 1901.....85&10%

Wire Cloth and Netting—
Galvanized Wire Netting..80&20@...%
Painted Screen Cloth per 100 ft...$1.00
Light Hardware Grade:
2-18 Mesh, Plain (8c. list) sq. ft., 1¼@1¾c
2-18 Mesh, Galv. (8c. list) sq. ft 2¼@2¾c

Wire, Barb—See *Trade Report.*

Wire Rope—See *Rope, Wire.*

Wrenches—
Agricultural.....70&10@75&5%
Case lots.....75&10%
Acme.....60&10%
Alligator.....70%
Baxter's S.....60&10%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 9 Pipe, Bright.....55%
Bindley Automatic.....30%
Boarniman's.....33⅓%
Coes' Genuine.....40&10&5&5%
Coes' "Mechanics'".....40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Elgin Wrenches.....40%
Elgin Monkey Wrench Pipe Jaws...33⅓%
Gem Pocket.....30%
Herchies.....70%
Knife Handle, Machinists' (W. & B.):
Case lots.....60&10%
Less than case lots.....50&5%
Improved Pipe (W & B.).....60%
Solid Handles, P. S. & W.....50@50&10%
Stillson.....65%
Triumph.....60&10%
Vulcan Chain.....30%

Wrought Goods—
Staples, Hooks, &c., list March 17 '92.....90@90&10%

Yokes, Neck—
Covert Saddlery Works, Trimmed.60&5%
Covert Saddlers Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters', list net

Zinc—
Sheet.....lb 6¼c@6¼c

PAINTS, OILS AND COLORS—Wholesale Prices.

White Lead, Zinc, &c.
Lead, English white, in Oil.... 7½@ 9¾
Lead, American White, in Oil:
Lots of 500 ℔ or over..... @ 6
Lots less than 500 ℔..... @ 6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price..... @ ⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... @ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.. @ 1¼
Lead White, Dry in bbls..... 5½@ 6
Lead, American, Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry.....℔ ℔ 4¾@ 4¾
Zinc, Paris, Red Seal, dry..... @ 8½
Zinc, Paris, Green Seal, dry..... @ 9¾
Zinc, Antwerp Red Seal, dry..... @ 6¼
Zinc, Antwerp, Green seal, dry .. @ 8
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over.....12 @12¼
Lots of less than 1 ton.....12¼@12¾
Zinc, V. M French, in Poppy Oil, Red Seal:
Lots of 1 ton and over.....10¾@11¼
Lots of less than 1 ton.....11@11½
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.
Black, Carbon.....℔ ℔ 5 @ 8
Black, Drop, Amer..... 4 @ 7
Black, Drop, Eng..... 7 @11
Black, Ivory.....12 @21
Lamp, Com..... 4½@ 6
Blue, Celestial.....℔ ℔ 4 @ 6
Blue, Chinese.....30 @35
Blue, Prussian.....28 @34
Blue, Ultramarine..... 4 @20
Brown, Spanish..... ⅛@ 1
Brown, Vandyke, Amer..... 1½@ 2½
Brown, Vandyke, Foreign..... 2½@ 3½
Carmine, No. 40.....℔ ℔ 2.05@2.75
Green, Chrome, ordinary..... 5 @ 6½
Green, Chrome, pure.....16 @20
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over..... @ 5½
Lots less than 500 ℔..... @ 6
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over..... @ 5½
Lots less than 500 ℔..... @ 6
Ocher, French Washed..... 1¾@ 1⅞
Ocher, Dutch Washed..... 4½@ 5
Ocher, American...℔ ton $10.00@15.00
Orange Mineral, English..℔ ℔ 8 @10
Orange Mineral, French.....11¾@ ..
Orange Mineral, German..... 8 @10¾
Orange Mineral, American .... 7¾@ 7¾
Red, Indian, English..... 4½@ 8½
Red, Indian, American ..... 3 @ 3½
Red, Turkey, English..... 4 @ 6
Red, Tuscan, English..... 7 @10
Red, Venetian, Amer.,℔ 100 ℔. 80@1.75
Red Venetian, English.℔ 100 ℔. 1.80@3.00
Sienna, Italian, Burnt and Powdered.....℔ ℔ 3½@ 7½
Sienna, Ital., Raw, Powd..... 3½@ 7½
Sienna, American, Raw..... 1½@ 2
Sienna, American, Burnt and Powdered.....℔ ℔ 1½@ 2
Talc, French.....℔ 100 ℔ $1.25 @1.50
Talc, American..... .90 @1.10
Terra Alba, French, ℔ 100 ℔ . 95 @1.00
Terra Alba, English..... .95 @1.00
Terra Alba, American No. 1....65 @85
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow.℔ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer..... 1½@ 2
Umber, Raw, Amer..... 1½@ 2
Yellow, Chrome .....10½@25
Vermilion, American Lead.....10 @40
Vermilion, Quicksilver, bulk.. .. @70
Vermilion, Quicksilver, bags... .. @71
Vermilion, English, Import.. .80 @95
Vermilion, Chinese.... . .$1.05@1.20

Colors in Oil.
Black, Lampblack..... 12 @14
Blue, Chinese..... 36 @40
Blue, Prussian.....32 @35
Blue, Ultramarine.....13 @16
Brown, Vandyke..... 9½@13
Green, Chrome.....10 @12
Green, Paris..... @24
Sienna, Raw.....10 @13
Sienna, Burnt.....10 @13
Umber, Raw..... 9½@12
Umber, Burnt..... 9½@12

Miscellaneous.
Barytes, Foreign, ℔ ton....$19.00@21.00
Barytes, Amer. floated..... 19.00@20.00
Barytes, Crude, No. 1..... 8.00@10.00
Chalk, in bulk.....℔ ton 2.50@ 2.80
Chalk, in bbls.....℔ 100 ℔ ...@ 35
China Clay, English..℔ ton 12.00@17.50
Cobalt, Oxide.....℔ 100 ℔ 2.20@ 2.50
Whiting, Common.℔ 100 ℔ .40@ .60
Whiting, Gilders..... .45½@ .65
Whiting, extra Gilders'.... .55@ .58

Putty.
In bladders $2.25
In bulk..... 1.25
In cans 1 ℔ to 5 ℔..... 3.25
In cans 12 ℔ to 25 ℔..... 2.25

Spirits Turpentine.
In Southern bbls.....44½@45
In machine bbls.....45 @45½@

Glue.
Cabinet.....11½@16
Extra White.....18 @33
French.....12 @40
Irish.....13½@16
Low Grade.....℔ ℔ 9 @12
Medium White.....14½@16¼

Animal, Fish and Vegetable Oils.
Linseed, City, raw.....℔ gal..63 @64
Linseed, City, boiled..... 65 @66
Linseed, State and West'n, raw.62 @63
Linseed, raw Calcutta seed..... @85
Lard, Prime..... 78 @79
Lard, Extra No. 1..... .60 @72
Lard, No. 1..... .50 @52
Cotton-seed, Crude..... @ ..
Cotton-seed, Summer Yellow, prime.....40 @41
Cotton-seed Summer Yellow, off grades..... .39 @40
Sperm, Crude..... @ ..
Sperm, Natural Spring.....71 @73
Sperm, Bleached Spring.....74 @76
Sperm, Natural Winter.....75 @77
Sperm, Bleached Winter.....78 @80
Tallow, Prime..... 60 @65
Whale, Crude..... @ ..
Whale, Natural Winter.....46 @47
Whale, Bleached Winter.....48 @49
Menhaden, Crude, Sound..... @ ..
Menhaden, Light Strained.....32 @33
Menhaden, Bleached Winter...34 @35
Menhaden, Ex Bleached Winter36 @37
Cocoanut, Ceylon..... .7¾@ 8
Cocoanut, Cochin..... 9 @ 9½
Cod, Domestic..... 33 @34
Cod, Newfoundland..... 35 @40
Red Elaine..... @42
Red Saponified.....℔ ℔ 6¾@ 6¾
Olive, Italian, bbls..... 52 @ 55
Neatsfoot, prime..... 57 @58
Palm, prime, Lagos.....℔ ℔ 5¾@ 6

Mineral Oils.
Black, 30 gravity, 25@30 cold test.....℔ gal. 9¾@10¼
Black, 29 gravity, 15 cold test. 10¾@11¼
Black, summer..... 9¼@ 9¾
Cylinder, light filtered..... 14¾@17½
Cylinder, dark filtered..... 11¾@15¾
Paraffine, 903-907 gravity..... 12¼@12¾
Paraffine, 903 gravity.. ..... 11¾@11¾
Paraffine, 883 gravity..... 9¾@10
Paraffine, red, No. 1..... 12¾@12¾
In small lots ¼c advance.

THE IRON AGE.

The eldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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CURRENT METAL PRICES.

FEBRUARY 12, 1902.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report

IRON AND STEEL—

Bar Iron from Store—

Refined Iron:
1 to 1¼ in. round and square..... ₩ ℔ 1.95@2.05¢
1¼ to 4 in. x ⅜ to 1 in..... ₩ ℔ 1.95@2.05¢
1¼ to 4 in. x ¼ to 5-16..... ₩ ℔ 2.05@2.15¢
Rods—⅜ and 11-16 round and square. ₩ ℔ 2.25@2.35¢
Angles: Cts ₩ ℔
3 in. x ¼ in. and larger..... 2.50¢
3 to 3½ in. x 3-16 in..... 2.50¢
1¼ to 3 in. x ¼ in..... 2.50¢
1¼ to 2¾ in. x 3-16 in and thicker.... 2.30@2.30¢
1 to 1¼ in. x 3-16 in..... 2.30@2 40¢
1 to 1¼ x ¼ in..... 2.40@2.50¢
⅞ x ⅛ in..... 2 70¢
⅝ x ⅛ in..... 2.85¢
⅝ x ⅛ in..... 3.50¢
⅛ x 3-32 in..... 4.00¢
Tees:
1 in..... 2.80¢
1¼ in..... 2.60¢
1½ in. and larger..... 2 50@3.00¢
Beams..... 2.50@3.00¢
Channels, 3 in. and larger..... 2.50@3.00¢
Bands—1¼ to 6 x 3-16 to No. 8..... ₩ ℔ 2.80¢
"Burden's Best" Iron, base price..... ₩ ℔ 3.15¢
Burden's "H. B & S. Iron, base price..... ₩ ℔ 2.95¢
"Ulster"..... ₩ ℔ 3.60¢
Norway Bars..... 3.75@4.25¢
Norway Shapes..... 4.00@4.50¢

Merchant Steel from Store—

per ℔
Bessemer Machinery..... 1.90 to 1.95¢
Toe Calk, Tire and Sleigh Shoe..... 2.00@2.50¢
Best Cast Steel, base price in small lots..... 7½¢
Best Cast Steel Machinery, base price in small lots..... 6 ¢

Soft Steel Sheets—

¼ inch	2.20¢	No. 14	3.00¢
3-16 inch	2.30¢	No .16	3.20¢
No. 8	2.40¢	No. 18	3.40¢
No. 10	2.60¢	No. 20	3.70¢
No. 12	2.90¢	No. 22	3.80¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel.	R. G. Cleaned.
Nos. 14 to 16	₩ ℔, 3.60	3.85¢
Nos. 18 to 21	₩ ℔, 3.70	3.75¢
Nos. 22 to 24	₩ ℔, 3.80	3.85¢
Nos. 25 to 26	₩ ℔, 4.00	3.95¢
No. 27	₩ ℔, 4.00	4.05¢
No. 28	₩ ℔, 4.10	4.15¢

Russia, Planished, &c.

Genuine Russia, according to assortment..... ₩ ℔ 11@14¢
Patent Planished..... ₩ ℔ A, 12¢; B, 11¢, net.

Galvanized.

	B. B.
Nos. 10 to 16	₩ ℔, 12¢
Nos. 17 to 21	₩ ℔, 13¢
Nos. 22 to 24	₩ ℔, 14¢
Nos. 25 to 26	₩ ℔, 15¢
No. 27	₩ ℔, 16¢
No. 28	₩ ℔, 17¢
No. 29	₩ ℔, 19¢
No. 30	₩ ℔, 21¢

67½&5&70% off.

30 in. 1¢ ₩ ℔ higher.

Foreign Steel from Store—

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 18 @ 20 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 13 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12 ¢
R. Mushet's "Special"	₩ ℔ 46 ¢
" " Annealed	₩ ℔ 75 ¢
" " "Titanic"	₩ ℔ 19 ¢
Hobson's Choice XX Extra Best	₩ ℔ 85 ¢
Jessop Self Hardening	₩ ℔ 45 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson's "Soho" Special Self-Hardening	₩ ℔ 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.	Per ℔
Banca, Pigs	24¼@25 ¢
Straits, Pigs	24¼@25 ¢
Straits in Bars	25¼@26 ¢

Tin Plates—

American Charcoal Plates.

Caliand Grade:
IC, 14 x 20..... $7.25
IX, 14 x 20..... 8.75
Nelyn Grade:
IC, 14 x 20..... 6.75
IX, 14 x 20..... 8.25
Allaway Grade:
IC, 14 x 20..... 6.25
IX, 14 x 20..... 7.35

American Coke Plates—Bessemer—

IC, 14 x 20 ..... 108 ℔ ..... $5.00@5.25
IX, 14 x 20..... $6.00@6.25

American Terne Plates—

IC, 20 x 28..... $10.00
IX, 20 x 28..... $12.00

Tin Boiler Plates, American—

XX, 14 x 28..... 112 sheets..... $12.50
XX, 14 x 28..... 112 sheets..... 13.50
XX, 14 x 31..... 112 sheets..... 15.00

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake..... 18¼@14
Casting..... 13¼@13¾

Sheet and Bolt—

January 2, 1902.

Prices, in cents per pound. Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 50 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz. 25 to 50 lb.	24 oz. to 32 oz. 12½ to 25 lb.	16 oz. to 24 oz. 12½ to 18¾ lb.	14 oz. and 15 oz. 11 to 11¾ lb.	12 oz. and 13 oz. 9½ to 10 lb.	10 oz. and 11 oz. 7¾ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	16	16	16	16	17	18	19	22	25
30	96	72	16	16	16	16	17	19	22	25	
30	.....	96	16	16	16	16	18	22			
36	72	.....	16	16	16	16	18	20	23	26	
36	96	72	16	16	16	16	18	22	25		
36	120	96	16	16	16	17	19				
36	.....	120	16	16	17	18					
48	72	.....	16	16	17	18	20	23	26		
48	96	72	16	16	17	19	21	24			
48	120	96	16	16	18	20	24				
48	.....	120	16	17	19	22					
60	72	.....	16	16	17	19	22	27			
60	96	72	16	16	18	20	25				
60	120	96	16	17	19	24					
60	.....	120	17	18	20	24					
72	96	.....	16	17	19	24					
72	120	96	16	18	21	26					
72	.....	120	17	19	24						
108	96	.....	17	19	22						
108	120	96	18	20	23						
108	.....	120	19	21	25						
wider than 108	132	.....	20	22							
	.....	132	21	24							

Rolled Round Copper, ⅜ inch diameter and over, ₩ ℔ 16¢.
Circles, Segments and Pattern Sheets, 3¢ ₩ ℔ advance over price of sheet Copper required to cut them from.
Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.
All Polished Copper, 20 in. wide and under, 1¢ ₩ ℔ advance over the price for Cold Rolled Copper.
All Polished Copper, over 20 in. wide, 2¢ ₩ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ ℔ ..... 20¢
12 oz. and up to 14 oz. to square foot, ₩ ℔ ..... 21¢
10 oz. and up to 12 oz., ₩ ℔ ..... 23¢
Lighter than 10 oz., ₩ ℔ ..... 26¢
Circles less than 8 in. diameter, 2¢ ₩ ℔ additional.
Circles over 13 in. diameter are not classed as Copper Bottoms.
Polished Copper Bottoms and Flats, 1¢ ₩ ℔ extra.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.
List Feb. 20, 1901.

Nos...0000 to 8	9 and 10		11 and 12
Base	½¢		¾¢ ₩ ℔ adv.
Nos..... 13	14	15	16
¼¢	⅝¢	1¢	1¼¢ ₩ ℔ adv.
Nos..... 17	18	19	20
1¾¢	2¢	2¼¢	2¾¢ ₩ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.
Feb. 6, 1899. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1⅛	1¼
4-11	3- 9	...	.....	.....	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	40	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	33	32	31	28	27
19	17	62	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	66	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	72	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	29	27	21	21	21	21	21	21	21	23	25	27	28	₩ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₩ ℔ additional

Brazed Brass Tubing.

(*To No.* 19, *inclusive.*) June 6, 1898.
Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ⅛ in. up to 2 in.	$0.35
" " ⅛ " ¼ "	.36
" " ¼ " ⅜ "	.38
" " ⅜ " ½ "	.41
" " 5-16 " ½ "	.48
" " ¼ " 5-16 "	.65
" " 3-16 " ¼ "	1.00
" " ⅛ " 3-16 "	1.50
Smaller than ⅛ inch	Special
2 inch to 3 in. n, to No. 19, inclusive	.38
3 inch	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50
Bronze and Copper, advance on Brass List, 3 cents.	
Discount from list	40%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass Wider than and including	in. 2 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24	in. 24 26
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36
Nos. 21 22, 23 and 24	.23	.24	.26	.28	.30	.32	.34	.37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.35	.39

Common High Brass. Wider than and including	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40	In. 40
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.
Add 1¢ ₩ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List..... 30%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gilding bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28½
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.92
No. 35	.70	.74	1.00
No. 36	.76	.80	.50
No. 37	1.00	1.04	.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 3½%; Copper Wire, Net.
List November 16, 98.
Spring Wire, 2¢ ₩ ℔ advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅝ to 3 in. diameter, ₩ ℔, net..... 17¢
Finished Piston Rods, ⅝ to 2½ in. diameter, ₩ ℔ net..... 18¢
Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₩ ℔
Western Spelter..... 4½@4¾¢

Zinc.

Duty: Sheet, 2¢ ₩ ℔.
600 ℔ casks..... 6¾¢ | Per ℔..... 7¼¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ ℔. Pipe and Sheets, 2½¢ ₩ ℔.

American Pig	4.40@4.45¢
Bar	5 @5½¢
Pipe	6½¢.....20% off
Tin Lined Pipe	12½¢.....20% off
Block Tin Pipe	35 ¢.....20% off
Sheet Lead	7¼¢.....20% off

Old Lead in exchange, 3½¢ ₩ ℔.

Solder.

½ & ½ guaranteed..... 16½@17 ¢
No. 1..... 14 @15½¢
Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson	₩ ℔ 10¼@10¾¢
Hallett's	₩ ℔ 8¾@8¾¢
U. S.	₩ ℔ 8 @8¼¢

Aluminum—

Duty: Crude, 8¢ ₩ ℔. Plates, Sheets, Bars and Rods, 13¢ ₩ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:	
Small lots	₩ ℔ 37¢
100-℔ lots	₩ ℔ 34¢
No. 2 Aluminum (guaranteed to be over 99% pure), in ingots for remelting:	
Small lots	₩ ℔ 34¢
100-℔ lots	₩ ℔ 33¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₩ ℔.	₩ ℔.	₩ ℔
Nos. 13 to 19	$0.42	$0.44	$0.47
No. 20	.44	.46	.49
Nos. 21 to 23	.46	.49	.51
No. 24	.46	.50	.53
No. 25	.47	.51	.54
No. 26	.47	.54	.59
No. 27	.48	.57	.62
No. 28	.48	.57	.64
No. 29	.49	.60	.69
No. 30	.50	.64	.77

Note.—Lots of less than 50 ℔ 5¢ ₩ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No.	₩ ℔ 40¢	No. 15	₩ ℔ 43¢
No. 9 to No. 10	₩ ℔ 40½¢	No. 17	₩ ℔ 50¢
No. 11	₩ ℔ 41 ¢	No. 18	₩ ℔ 55¢
No. 12	₩ ℔ 41½¢	No. 19	₩ ℔ 60¢
No. 13	₩ ℔ 42 ¢	No. 20	₩ ℔ 65¢
No. 14	₩ ℔ 42½¢	No. 21	₩ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₩ ℔ 9½¢
Light and Tinned Copper	₩ ℔ 7½¢
Heavy Brass	₩ ℔ 7½¢
Light Brass	₩ ℔ 5½¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 3½¢
Zinc	₩ ℔ 3 ¢
No. 1 Pewter	₩ ℔ 16½¢
No. 2 Pewter	₩ ℔ 8 ¢
Tin Plate Scrap	₩ ton $8.00
Wrought Scrap Iron	₩ gross ton $11.50@12.00
Heavy Cast Scrap	₩ gross ton $11.00@11.50
Stove Plate Scrap	₩ gross ton $9.50@10.00
Burnt Iron	₩ gross ton $6.00@6.50